American Druggist

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NOTES ON PRACTICAL PHARMACY.*

[Continued from p. 9.]

TROCHES—PASTILLES.

TROCHES or PASTILLES, *Trochisci, Pastilli*, aresmall round cakes, weighing from 0.5–1.0–5.0 Gm. (8, 16 to 80 grains). As a rule, the weight of 1.0 gramme (16 grains) is that most commonly used, and it is also sanctioned by the Pharmacopœa Germanica.† When a physician prescribes Troches, they are dispensed when only partially dried, while, when they are intended to be kept in stock for a long time, they should be perfectly dried. The process of drying is carried on in a moderately warm place. The time required for the production of from ten to thirty troches, including drying, is about two hours.

The preparation of the mass for troches or pastilles, according to the prescription of a physician, was formerly accomplished, and would today be accomplished if the necessary apparatus were not at hand, as follows: The mass from which the troches are to be made is given the consistence of bolus (see page 8).

Every 250 parts of the powdered mixture, if it does not contain any viscous matters, must receive an addition of not more than 1 part of finely powdered tragacanth, or 5 parts of marshmallow root. Should more be used, the troches would be too hard when dried. The division of the mass is effected by means of the pill-machine, being rubbed into what is termed a pill-string, which is cut off between the grooved halves of the pill-machine under pressure, the pieces thus cut off are then trimmed with a knife, formed into pills, consperged, and pressed tolerably flat with a cork which has been notched on its smooth surface into a lattice-work or star-shaped device. A troche-stamp of metal, with a wooden handle, shaped like an ordinary letter-sealing tool, engraved with a star-shaped device, is also used. The rim of the troche is rounded, but the larger ones, especially when the mass was not of sufficient plasticity, are apt to be more or less notched or cracked which, of course, is to be avoided as far as possible.

Troches have recently been designated as pastilles, and those in which sugar or chocolate form the chief constituents and corrigents of taste are known by this name exclusively. The *Pharmacopœa Germanica*, ed. I., translates *trochisci* into PASTILLES, and this designation, on account of its easier pronunciation, has become the one most generally employed.*

There are two kinds of pastilles, distinguished by their preparation and composition. In one kind sugar is the constituent, and in the other chocolate (*Semina Cacoa præparata*).

PASTILLES with SUGAR. The mass for these is prepared by thoroughly triturating and mixing the drug employed with a portion of the sugar, and also with the powder that serves as the constituent, and after the whole powdered mass has been thoroughly mixed, adding cold water gradually, with continuous kneading, until a plastic mass is obtained. Tragacanth is generally used as the constituent, and gum-arabic, marshmallow, and white of egg are also frequently employed. The addition of a mixture of 1 part tragacanth and 2 parts gum-arabic will render the pastilles attractive in appearance. A further condition to be observed is that very finely-powdered sugar should be used. It is necessary to be cautious in adding the tragacanth, since it has a tendency to make the outside of the pastilles too hard when employed in excess. The pastilles, when dried, should be only so hard as to be easily crushed between the teeth.

Although a perfectly satisfactory pastille mass which dries easily and is also sufficiently hard, can be made from 100.0 grammes of powdered sugar (see below), and 8.0 grammes glycerinated water, still a trifling addition of powdered tragacanth (say 0.1–0.2 to 100.0 of powdered sugar) is recommendable, since the mass is thereby rendered more conveniently plastic. In this case, each 0.1 gramme of tragacanth will require 0.5 gramme more of glycerinated water. Although it is true that glycerin is a hygroscopic substance, yet, in this case, experience shows that it does not impede the drying of the pastille mass; the pastilles having been dried for several hours in air at the ordinary temperature, and then in a heat of about 25° C., will keep without undergoing any alteration.

The *Pharmacop. Germanica*, ed. I., directs that the powdered sugar should be moistened with diluted alcohol, and the pastilles made under pressure. For a pastille-mass made in this way, 100.0 parts of powdered suger and 10.0–11.0 parts of dilute alcohol are required, but the mass has not sufficient coherence and plasticity, and too easily adheres to whatever it may rest upon. By the addition of glycerinated water and some tragacanth, a mass is obtained which neither adheres to the tool with which it is pressed, nor clings to the apparatus with which it comes into contact. The appearance of the pastilles is always improved when no addition of consperg ent powder (starch or lycopodium) is made in their manufacture. *Aqua Glycerinata*, or glycerinated water, consists of equal parts, glycerin and water.

In preparing a pill-mass in which sugar is the constitutent, about ¼ of the quantity of sugar is taken and the necessary amount of water added. Then by diligent kneading with the pestle, it is made into a mass from which pastilles can be shaped, and the rest of the sugar is added with continued kneading. At first the mass is crumbly, but as the kneading proceeds it will, partly in consequence of deliquescence of part of the sugar, become soft, often too soft, so that it will be necessary to add more powdered sugar to obtain the proper consistence for a pastille-mass. Thus the labor may be reduced by employing the greater part of the sugar in making the mixture into a soft pastille-mass, and then adding the rest of the sugar. Since the pastille-mass containing sugar crumbles after lying for five or ten minutes, and has to be made plastic again by further kneading, it is recommended that the quantities that are to be made into pastilles be carefully weighed and divided by weight (and not by being divided by the pill-machine). The manner of making sugar pastilles varies considerably according as a larger or smaller number is desired.

If but few (from 10–50 pastilles) are to be made, or if the drug employed is

FIG. 1.

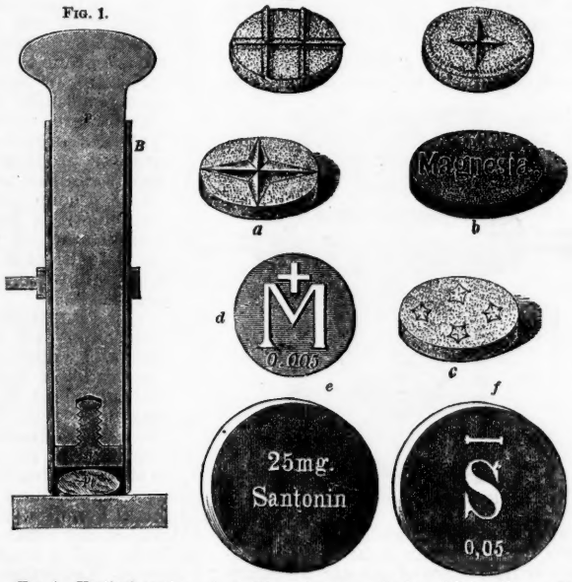


FIG. 2.

FIG. 1.—Vertical section of pastille-maker; B, cylinder with handle; *p*, pestle; *st*, stamp; *pt*, pastille-mass. 1. Troche stamped with a cork notched in lattice work. 2, Troche stamped with a troche stamp. Pastilles punched by the pastille-maker; *a* and *c* are pastilles made of sugar, *b* is a pastille of chocolate. *d*, Mark for Pastilles of Morphine. *e*, *f*, Pastilles of Santonin. FIG. 2.—Pastille-maker with spring and adjustable screw.

* The basis of this series of papers is the last edition of Hager's "Technik der Pharmaceutischen Receptur." The editors have, however, found it desirable to omit certain portions which relate to matters of practice peculiar to Germany and to insert others which are more characteristic of American customs. Editorial additions are inclosed in [ ]. The use of the original text has been kindly granted by Dr. Hager.

† An absolute confusion prevails in medical and pharmaceutical works, among the various designations. *Trochisci, Pastilli, Tabulæ, Rotulæ, Tablettes, Cones or Spirals*, so that it is scarcely possible to obtain an intelligent view of these forms of administration of medicines. The designations observed in this work conform to the most prevalent custom in pharmaceutical practice. *Pastillus* is said to be the diminutive of *panis*.

* Pastilles are also called *tablettes* in French. The application of the terms spirals or cones to pastilles is entirely inadmissible.

a very active one, so that the dose must be accurately determined, the following procedure is adopted: the pastille-mass rendered perfectly plastic by having been kneaded with the pestle, as described in the making of troches, is made into portions with a pastille-divider, or, if this is not at hand, with a pill-machine, and each portion from which a pastille is to be made, is shaped into a pill and thrown into the cylinder of the pastille-maker, which is made of white-metal, brass, or German silver (*c*), open at the top and bottom, and then flattened by means of the wooden pestle (*p*), either by sufficient pressure or by moderate blows. A piece of stout paraffin paper forms a suitable foundation for the pastille to rest on.

Conspergents are used only when the mass is sticky or adhesive. Then the bottom of the cylinder must also be dipped into the powder before the making of each pastille. If, despite this precaution, some of the mass should adhere, it must be at once removed by wiping with a cloth. The pestle (*p*), which may be made of any hard wood, must not fit so closely into the cylinder as to prevent the escape of the air upwards, when it is forced down. Furthermore, as it is customary to impress a device or the name of the maker on the pastille, the lower end of the pestle is furnished with a female screw-thread, in which the stamp (*st*) (made of boxwood or metal) may be inserted.

The pastille-divider is made from hard wood of the form and size of the cutter or divider of the pill-machine, except that its ridges are one centimeter apart.

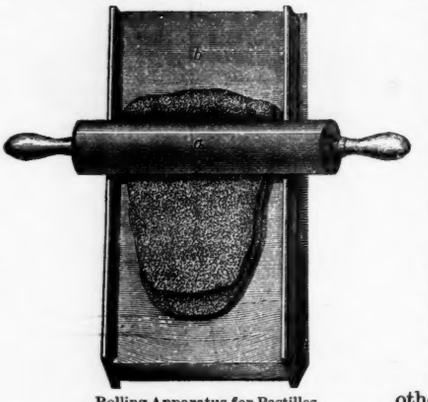
In the preparation of a large quantity of pastille-mass, a rolling apparatus is used, consisting of a rolling-board and rolling-pin (see the following cut).

The ROLLING-BOARD (*b*) is about 20 Cm. (8 inch.) broad, 30 Cm. (14 inch.) long, and 3 Cm. (1¼ inch.) thick, made of hard wood, and perfectly even and smooth. Along both the long sides two ledges are fastened, which reach beyond the surface of the board about 2.75 Mm. (ab. ⅛ inch) above the upper and 3.5 Mm. (ab. ¼ inch) above the lower side. The rolling-pin is made of the same wood, about 7.5 Cm. (3 inch.) in diameter and 25 to 26 Cm. (ab. 10 inch.) long. The pin revolves around an axis, of which one end is fastened and the other has a handle which can be unscrewed.

After the dried board has been well sprinkled or dusted with the conspergent powder, a portion of the pastille-mass is cut off, made into a cake, and flattened with the hand, dusted with conspergent powder, and spread out with the rolling-pin into a uniform mass. As the ledges on the sides of the board offer a resistance to the pressure of the rolling-pin, the thickness of the layer of the pastille-mass is necessarily equal throughout. The surface of the mass is now again to be sprinkled with conspergent powder, which is rubbed over with the palm of the hand, and the mass is then punched out with the pastille-maker. If it is not desired to make the pastilles with a device or the name of the maker, the pestle of the pastille-maker is removed, and the punching process continued, without shaking out the pastilles which may be adhering to the sides of the cylinder, until the latter is filled. This, of course, is only practicable when a conspergent powder is employed in the process.

PASTILLE-MAKER with spring and adjustable screw. This instrument varies in size and circumference. It differs from the simple pastille-maker in that, by means of it, pastilles can be punched out, of any desired definite weight and thickness, and the use of the rolling-board with side ledges dispensed with. The pastille-mass is spread out on any smooth, powdered surface, such as a slab of marble or a board, by means of the rolling-pin, to a thickness slightly in excess of that which the pastilles are to have. The mass is then punched by the pastille-maker, and the lever on the side being pressed, the pastilles are thrown out and laid on a plate to dry. The pastille-maker consists of a cylinder of plated copper, *c c*, surmounted by a wooden knob, *b*, fastened to it by means of two little screws. The knob *b* is bored lengthwise through its centre, and the aperture closed with an adjustable screw *a*. According as this adjustable screw is moved up or down, the play of the stamp *e d* is determined, and the space below the stamp which is to be filled by the pastille is likewise thus regulated. The spring *f* causes the lever *g* to force the stamp *e d* upwards against the adjustable screw *a*. On the other hand, if the lever *g i*, at the point *i*, is pressed toward the knob *b*, the stamp is pushed downwards, and the pastilles which have been pushed out are forced out of the bottom of the cylinder. In using this instrument, it is necessary to wipe off the lower end frequently, and dip it into the conspergent powder during the process of cutting the pastilles.

The DRYING OF PASTILLES made of powdered sugar requires care. The



Rolling Apparatus for Pastilles.

freshly made pastilles are first to be dried for at least an hour at the ordinary temperature of the air, and then exposed to a heat of about 25°. After the lapse of an hour, they are usually dry enough to be dispensed. Thus 10 to 50 pastilles can be made up in two hours. Pastilles intended to be kept in stock should be dried for an entire day at the ordinary temperature, and then placed in a temperature of about 25°, in which they usually dry thoroughly in several hours. A higher temperature frequently injures the smooth appearance of the pastilles.

SIZE OF PASTILLES. If the prescription leaves the determination of the weight or size of the pastilles to the dispenser, he should make them of the weight of about 1.0 gramme (15½ or 16 grains).

℞ Calomelanos.....1.0
Sacchari.....q.s.
M. f. pastilli 20. D. S.

℞ Pastillor. Calomelanos numero 20. D. S. (āā 0.05 = ¾ gr.).

In this prescription the dispenser has to make pastilles of about 1.0 gramme weight, from 1.0 gramme of calomel, 17.5 grammes (4½ ʒ) powdered sugar, 0.1 to 0.2 grammes (2–4 gr.) powdered tragacanth and 1.7 to 1.8 grammes (ab. 25 grains) *aqua glycerinata*.

Pastilles containing poisonous drugs should bear a distinctive mark.

The sign for pastilles of morphine is, for instance, an M with a cross over it, as $\dot{\text{M}}$, but not "Morphine," since the physician is only too often placed in such a position that he does not deem it advisable to allow the patient to know the name of the medicine he administers.

Tablets of santonin also belong to the class of powerful drugs, and require a sign such as shown in the accompanying cut. [Pastilles of morphine are a form of administration of this drug which ought not to be encouraged, and is, in fact, but rarely used in this country.—ED. AM. DR.]

CONSPERGENT POWDER for pastilles. If the pastilles are colored, lycopodium is generally used, also a mixture of lycopodium with very finely powdered cinnamon. For colorless or white pastilles, fine, thoroughly dried, wheat-starch powder is generally employed, or even a very fine powder of *talcum venetum*.

PASTILLES of CACAO MASS (*chocolate mass*) are prepared by triturating the medicinal substances with from ten to twenty times its quantity of cacao mass, until it becomes a fine powder, and adding to the mixture the remainder of the cacao mass, rendered semi-fluid in the water-bath. The mass, half cooled, or at a temperature of about 40°, is then treated by the pastille-divider and the pastille-maker in the same manner as the pastilles of sugar. Compounds which are prone to decompose, as well as very bitter or nauseous substances, and especially alkaline salts or earths are usually made up in pastilles of cacao. Alkaline substances produce changes in sugar, and well dried pastilles containing them become soft or tough on being kept. A limited number of pastilles, which would be used up by the patient in two or three days, may, however, be made with sugar.

The FINISHER* is composed of the rolling-disk and a plate, both parts of which are of hard wood, generally of the pear-tree. The rolling-wheel (*b*) is a turned disk, about ½ inch in thickness, 3½ inches in diameter, with a projecting rim of $\frac{11}{100}$ inch, and with a strong button (*a*) as a handle. The other part is a round plate (*c*), which is about (1.6 millimeter) 0.123 inch in thickness, and with a diameter of about an inch, and a length of from 4½ to 5 inches. The height of the projecting rim is about from .15 to .19 of an inch. The disks and plates are so arranged that the parts project vertically upon the circular surfaces. The finisher is not painted or polished, as the surface which is to come in contact with the pills should possess the requisite roughness. The wood should be thoroughly dried, so as to have no cracks or fissures.

The top should be large enough to be conveniently grasped in the hand, and fill the closed palmar surface thereof.

Vial's pill-finisher consists of three parts: a disk to roll the pills on; a movable wooden ring, and a wooden disk with a handle fitting into it. The two latter parts form the real pill-maker.

The material employed in the manufacture of these machines is compressed wood, which is exceptionally hard and does not absorb humidity, so that there is no change in shape from absorption of moisture, as it otherwise would be particularly prone to in washing.

The fact that the disk is not fastened to the ring, but simply fits into it, prevents the pills from rolling out.

The practical compounder can dispense with all these devices, as he needs only an empty, round pasteboard box, about 2¼ inches in diameter,

* See illustration of pill-finishers in December number.

with unglazed bottom, which is used as finisher. The pills are either put into a perfectly flat wooden plate, or upon a piece of hard, smooth pasteboard about 8 inches square, upon which they are confined by laying upon it another square piece of pasteboard only about $\frac{1}{12}$ inch thick, with a central hole of about 4¾ inches in diameter.

The 30 or 60 pills made by the machine are put on the wooden plate, sprinkled with conspergent powder, put under the rolling disk and rolled in small circles. It is very easy to feel if any pills stick together, and to separate them with the fingers.

A number of pills that would require about an hour to be made up with the fingers, can be turned out with the finisher in ten minutes, while it is impossible to make them so round and smooth with the fingers. There are finishers for 1, 2, and 3-grain (or 0.6, 0.12, and 0.2 Gm.) pills, and marked I., II., III. For the 1-grain pills the rim is 3 millimeters in height, that for the 2-grain pills 4 millimeters, and that for the 5-grain, 5 millimeters.

Whenever the rolled pill-mass is adhesive, conspergent powder should be shaken over it; on the other hand, there are pill-masses that refuse to be rolled, but glide to and fro on the rolling-board. In this case the rolled mass is slightly moistened with water, or preferably, rubbed with wetted blotting paper.

Conspergent Powder (Pulvis conspergens). Pills are strewn with conspergent powder to conceal their taste and to prevent them from adhering. In case no powder is specially prescribed, *lycopodium* is always used.

Cinnamon, liquorice root, fennel, orris root, starch, etc., in fine powder, are also used. If vanilla is ordered as conspergent, a trituration of 1 part of vanilla and 9 parts of sugar of milk is employed. Cane sugar is not suitable for conspergent powder, owing to its hygroscopic qualities.

Substitute for Volumetric Solution of Iodine.

In making volumetric solution of iodine, it is common to use dry, resublimed iodine, and to assume that the latter is, under these circumstances, sufficiently pure to answer as a starting point. This is, however, not always the case; moreover, the volatility of iodine, either in substance or in solution, is liable to render the volumetric solution more or less incorrect.

It has long been known that bromates are decomposed by mineral acids, with liberation of free bromine. This reaction is, in fact, utilized in the U. S. Pharmacopœia to examine bromide of sodium and bromide of potassium for their freedom from bromate. And upon this reaction Dr. Kretschmer now bases a process which will eliminate one source of error from volumetric determinations with iodine. He points out that *bromate* of sodium, in presence of a sufficient amount of iodide of potassium, when treated with a mineral acid, liberates a quantity of iodine equivalent to the oxygen contained in its molecule. In fact, the mineral acid decomposes the bromate, setting free its bromine; this liberates its equivalent quantity of iodine, and takes its place, and the liberated iodine is then available for the volumetric determination.

Bromate of sodium may be easily obtained pure, and in a crystalline condition, by adding an excess of bromine to hot solution of soda, evaporating and separating the first crop of crystals. This crop, consisting of strongly shining tetraëders, should be recrystallized from water, which will at the same time eliminate all traces of chlorine. When perfectly free from bromide, they may be rubbed to powder, and dried. They will stand a temperature up to 180° C. without decomposition.

One gramme of bromate of sodium, according to the author's experiments, replaces 5.04 grammes of iodine. Or 1 gramme of iodine may be replaced by 0.1984 gramme of bromide of sodium. The volumetric solution of bromate of sodium, therefore, is prepared by dissolving 2.512 grammes (or, when bromine = 79.8 : 2.508 grammes) of bromate of sodium in water to 1 liter, and is then is exactly equivalent to the one-tenth normal volumetric solution of iodine containing 12.66 grammes of iodine in the liter.—After *Zeitsch. f. Anal. Chem.*, 1885, 546.

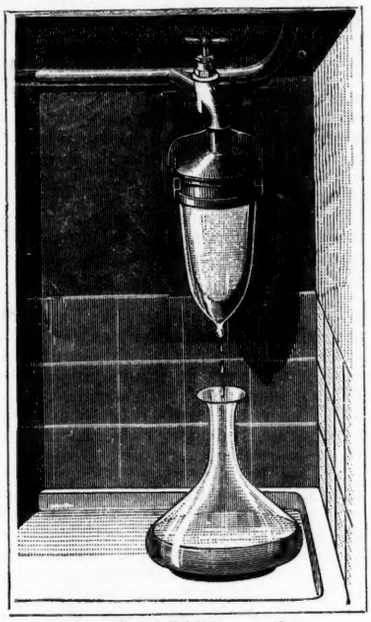


Fig. 1.—The Mallié Filter complete.

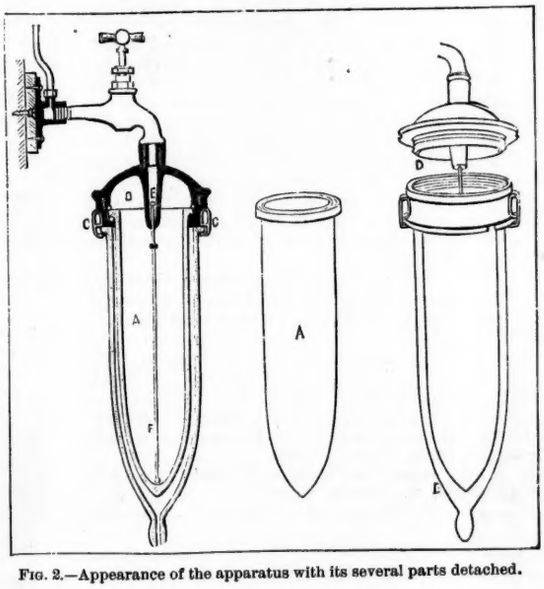


Fig. 2.—Appearance of the apparatus with its several parts detached.

Oil of Benjamin.

For this, which was an empyreumatic oil prepared by destructive distillation of the residuum of benzoin left after the sublimation of benzoic acid, a mixture is factitiously given of

Oil of Cade (or preferably)
Oleum Rusci..... ...1 part and
Oil of Sesame or Cotton-seed Oil.....9 parts.

—*Chemist and Druggist.*

THE MALLIE FILTER.

In the preceding volume of the American Druggist, reference has been made to this filter. We are indebted to a recent number of *La Nature* for an illustrated description of it. Figure 1 shows the filter complete and connected by a faucet with the service pipe. In Figure 2, *A* represents the porcelain vessel which is the essential feature of the apparatus. *B* is the glass outer case which is made sufficiently thick to withstand pressure and hard usage. *C* is the screw by means of which the parts are held together, and *E* the spout by which the apparatus is affixed to the faucet. The portion of the cap indicated by *D* forms an air-chamber in which, depending upon the force of the water-supply, air is compressed and serves by its elasticity to prevent breakage by sudden shocks, and to increase the amount of air absorbed by the water in its passage through the filter; for, on leaving the filter by the orifice at the bottom of the glass vase, the water is turbid owing to the amount of free air-bubbles contained in it. When, after a little time, this excess of air has escaped, the water is left admirably limpid and thoroughly charged with oxygen.

The simplicity of the filter permits it to be cleaned of impurities in a few minutes, and experiments made by Mr. Girard, Chief of the Municipal Laboratory of Paris, prove that the water, upon leaving the filter, is physiologically pure, entirely free from germs of all kinds, and essentially adapted for all domestic uses.

The form of filter here shown is 30 centimeters high, and will purify from 60 to 80 liters of water daily, according to the pressure. A set of three filters will give a supply of about 250 liters *per diem*, and a set of six, from 600 to 650 litres *per diem*.

Destruction of Moss in a Greensward.

In humid soils, moss develops frequently in grass which is not very old, and completely smothers it. *La Revue horticole* proposes the following method to get rid of this invading vegetation.

In the month of July, when it is very dry, have the lawn cut at times with a sickle, or with a lawn-mower—grass, moss, and everything close to the ground. The sun's rays will in a few days destroy the roots of the mosses which thrive at the top of the earth. The greensward will suffer very little, but it will be immediately free of all parasitic vegetation. If the necessary care be given, that is, by copious waterings, in a very short time it will become green and thicker than ever. It is not to be forgotten that in sowing lawns, if powdered lime be cast upon it, the mosses will soon be completely destroyed.

Shoemakers' Burnishing Ink.—

℞ Extract Logwood..... 2 oz.
Tinct. of Iron..... 2 fl. oz.
Sweet Oil..... 2 fl. dr.
Diluted Alcohol..... O. i.
Mix.

Or

Extract Logwood..... 4 oz.
Bichromate of Potash,
Ferrocyanide of Potash..āā 12 gr.
Rain Water.....Cong i.
Mix.

In either case apply with brush and immediately burnish with hot iron. Dries black and shiny.—*National Drug.*

The Comparative Strength of the Commercial Aconitines.

DR. J. BUNTZEN and Mr. H. P. Madsen, of Copenhagen, have lately published the results of a series of investigations on the comparative strength of the preparations of aconite and the aconitines of the market, which has been given in abstract by Prof. Th. Husemann, of Göttingen, in the *Pharm. Zeit.* (No. 82). As this contains many interesting facts, some of which are entirely new, we translate the more important portion of the paper.

Buntzen and Madsen determined the strength of the several preparations by ascertaining the smallest quantity of each required to kill frogs (Rana temporaria) under proper precautions to eliminate errors. The following kinds of *aconitine* were used:

1. Pure, crystallized aconitine, prepared by Petit after Duquesnel's process.
2. Crystallized aconitine of Merck.
3. Amorphous aconitine of Merck.
4. Crystallized aconitine of Gehe.
5. Amorphous aconitine of Gehe.
6. Crystallized aconitine prepared by Madsen, separately from French (Vosges), and Swiss aconite.
7. Crystallized aconitine from Japanese aconite.
8. Crystallized aconitine from Himalayan aconite (*Aconitum ferox;* bish).

Regarding the last-named aconitine (8), the authors found that it is much weaker than that prepared from the Japanese drug. This inferiority is supposed to be due to the fact that the tubers have been exposed to too great a heat in drying.

Incidentally, Prof. Husemann points out a misstatement made by the authors, in saying that Morson's (English) aconitine is prepared from Aconitum ferox. Morson himself asserts distinctly that it is prepared from cultivated Aconitum Napellus.

How much the activity of aconitine depends upon its degree of purity, is shown by Madsen's results. Aconitine prepared by him from French (Vosges) and Swiss tubers was at first of feeble action, and only gradually, while passing through seven processes of purification, did it acquire the greatest potency. Even Japanese aconitine, purified but four times by Madsen, was considerably stronger than a japaconitine previously prepared by Harnack and Mennik. Aconitine from Himalayan aconite produced only a slight intoxication in doses of 1.67 milligramme (more than twice the fatal dose of the preceding); if given in the lowest fatal dose of japaconitine, it produced no poisonous symptoms whatever.

The authors asserted, in contra-distinction to previous observers, that *aconitine from Swiss tubers is not any stronger than that produced from French tubers,* and that any difference in activity previously found is to be ascribed solely to the greater or lesser degree of purity of the extracted alkaloids. Prof. Husemann is unwilling to regard this statement as convincing, since the authors fail to prove that they experimented with undoubted specimens of Swiss or French tubers.

Aside from the uncertainty about the origin of the tubers experimented with, Buntzen found the aconitine prepared by Madsen from the "French" aconite to be even more powerful than that prepared from the "Swiss" tubers (which had been obtained from Gehe & Co.).

This strong alkaloid obtained by Madsen, however, does not by any means attain the upper limit of activity. It has, namely, been shown by Buntzen that *Gehe's amorphous aconitine* is much more powerful, being able to kill frogs in doses of one-quarter milligramme ($\frac{1}{170}$ grain).

The several aconitines, according to Buntzen, may be classified as follows, beginning with the most active.

1. Gehe's amorphous aconitine (smallest fatal dose $\frac{1}{4}$ milligr.).
2. Aconitine prepared by Madsen from French aconite.
3. Gehe's crystallized aconitine (smallest fatal dose $\frac{1}{4}$ milligr.)
4. Petit's cryst. aconitine.
5. Merck's cryst. aconitine.
6. Aconitine prepared by Madsen from Swiss aconite.

(No. 4 to 6: smallest fatal dose about 1 Mg.)

7. Duquesnel's crystallized aconitine (not fatal yet in doses of $1\frac{1}{4}$ Mg.).

These results are of the greatest importance for practical therapeutics. In the first place, it appears from the preceding statements, as well as from the clinical experiments of Dr. Seguin (of New York), that *Duquesnel's* laboratory turns out batches of *aconitine of varying activity.* A preparation of which, in some cases, 0.8 Mg. ($\frac{1}{80}$ grain) have been easily borne by patients, while in other cases $\frac{1}{4}$ Mg. ($\frac{1}{270}$ grain) has produced decided symptoms of intoxication. These different aconitines, all appearing under Duquesnel's name, cannot, therefore, be of equal purity.

Another fact deducible from the above-named results is this, that *Germany* at present produces *the most powerful aconitine.* But, unfortunately, this very substance, instead of being crystalline (and therefore more likely to be uniform), is in form of an *amorphous powder* ("Gehe's amorphous aconitine"). Now, while this is a highly interesting body toxicologically, it certainly does not belong, in Prof. Husemann's opinion [as well as own], into the list of articles to be prescribed and dispensed. Physicians [on the continent of Europe] have become gradually accustomed to prescribe bitter almond water or cherry laurel water in place of hydrocyanic acid. Just in the same way, they should become accustomed to prescribe tincture of aconite in place of aconitine. This will be not only cheaper for the patients, but at the same time safer. Of course, the diversity in the strength of tincture of aconite in different pharmacopœias will have to be taken into account, or gradually eliminated, to prevent confusion. So, for instance, the strength of tincture of aconite of the U. S. Pharmacopœia is *four* times that of what it is usually in Europe.

Madsen assayed a series of tinctures prepared after the Danish, German, and U. S. Pharm., and found them to yield:

Tinct. Aconite.	*Impure Aconitine.*	*Purified Aconitine.*
Danish Pharm. (from leaves)	0.1784%*	0.1326%
German Pharm	0.0304%	0.0182%
Germ. Pharm. (prep. from French tubers)	0.5960%†	0.1320%
U. S. Pharm. (from French tubers)	0.1900%	0.1650%

Carbolic Acid and Chloral.

WHEN carbolic acid and chloral are mixed together in such proportions that the quantity of carbolic acid does not exceed 1.7 parts for every 1 part of chloral, the resulting mixture—which is a liquid, like that formed from camphor and chloral—is soluble in water in all proportions. If more carbolic acid is present, the latter will separate upon the addition of water. The above-named proportions correspond to 3 molecules of carbolic acid and 1 molecule of chloral. If the mixture is heated, the constituents separate.—A. BOURIEZ in *Nieuw Tijdsch. v. d. Pharm.*

* The impure aconitine prepared from the tincture of the leaves was almost inert.

† This figure is probably a mistake.—ED. AM. DR.

Blotting Paper for Removing Ink Spots.

IN order to take away ink spots from paper, it is customary to use a blotter, which freely soaks up the liquid, and if by this means all traces of the ink do not disappear, recourse is had to a salt or some substance having the property of bleaching paper, for instance, oxalate of potassium, etc., to attain this end. A simple modification of this renders still better services.

Take a thick blotting paper or board, steep it several times in a solution of oxalic acid or oxalate of potassium. Then dry it. If there is a spot to be taken away, apply the blotter, which has been prepared in this fashion, to the same. In proceeding thus, the ink is entirely removed. The blotter drinks up the ink, and whitens the paper at the same time.—*La Nature.*

India-Rubber Varnish.

THE scraps of vulcanized rubber, which is a mixture of rubber and sulphur, and which dealers in hard rubber goods can deliver in abundance, can furnish, by doing as follows, an excellent varnish, which dries promptly. Its color can be varied from a golden-yellow to the deepest brown. It sticks very well to metals, and can be employed on electric apparatus.

These clippings are put into a deep earthen pot, covered with a tight lid. The pot is set upon hot coals. At the end of five minutes, take the pot off from the fire, and see if the material is melted. While the pot is on the fire, take care not to lift the lid up, because the vapors which would be thrown off take fire easily. After the rubber is all melted, so that it can be poured out, and there are no more whole pieces, which can be discovered by fumbling through the mass with a large file, pour it into a flat tin basin. This basin should be rubbed with grease beforehand, and, after the mass is cooled, it is readily detached. Then break it into pieces, put it into a large bottle, pour on some benzol and rectified spirits of turpentine, and shake the mixture up several times.

The solution being complete, pour out the liquor to get rid of the impurities, some hardened rubber, which remains at the bottom, and a very limpid, beautiful, and excellent varnish is obtained.—*La Nature.*

Varnish for Cleaning Wood, Marble, and Oil-Cloths.

Take 80 parts.....Lemon juice.
400 " ..... Linseed oil.
64 " ..... Potato-lees (fecula).

Put into a bottle, and shake well before use.

Spread this mixture with a piece of woollen cloth upon the article to be cleaned, then rub, and finally wipe with a clean rag.

Impermeable Wrapping Paper.

DISSOLVE $1\frac{1}{2}$ lb. of white soap in a quart of water; then dissolve 2 oz. of gum Arabic and 6 oz. of glue in another quart of water. Mix the two solutions; warm the mixture; dip the paper in the liquid; pass it between two rolls (a clothes-wringer, for example), and put it to dry. In default of rolls, hang the paper up that it may drip well, or, better, pass it between two sheets of dry paper. Then let it dry in a mild temperature. —*La Nature.*

To Bleach Ivory.

IVORY is bleached by exposing it to the sunlight for some five or six months. But if it have a light coating of turpentine beforehand, it will bleach in three or four days.—*La Nature.*

HOW TO FORM AN HERBARIUM.

THE *Scientific American Supplement* contains the following from *Science et Nature:*

Plants designed for the herbarium should be prepared upon one's return from botanizing, if possible, or a few hours afterward. If they cannot be prepared until the next day or the day after, the plants must be left in the vasculum (Fig. 2), and the latter be placed in the cellar. But it is always best to prepare the plants as soon as possible after gathering them, except in the case of certain species that bloom early in the morning, and soon afterward drop their petals. In such cases the preparation may be deferred until the next morning, when new flower buds will have expanded. The plants should not be all taken out of the vasculum at once (especially if the preparation is to take some little time), but one after another. If desired, all the specimens of the same species may be taken out at once, and then the box should be immediately closed.

The place of preparation should be dry, light, and airy. A large table supported by high horses, and allowing one to work standing without fatigue, is extremely convenient. In excursions to a long distance the botanist is often far from finding such a convenience, however, and has to have recourse to his bed or the floor as a substitute.

Upon the table should be laid, on one side, double sheets of paper; on the other, the driers, and in front, the plants to be prepared. The first thing to be done is to free the plant from the adhering dirt, without breaking the roots or other parts, by light and repeated blows and by the aid of the fingers. This done, one of the double sheets of paper is opened and laid upon a drier, and a specimen spread out upon it in as natural a position as possible. If the plant is longer than the paper, its stem should be bent at a sharp angle near the top of the sheet, care being taken to previously compress or slightly crush the stem where the bend is to be made,

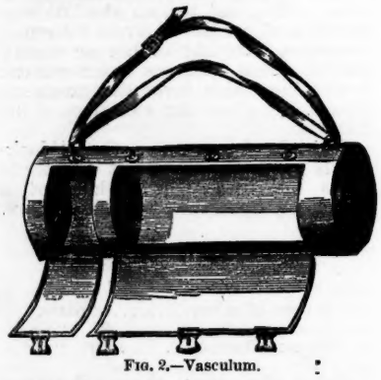


FIG. 2.—Vasculum.

so as to prevent it from snapping in two. The part of the specimen bent over should be separated as slightly as possible from the rest of the plant, especially if its length necessitates a second bending. Care should be taken to so arrange the specimen that its stem and branches and their primary ramifications do not injure the leaves or other organs of still more delicate texture. If the plant is very branchy at the summit, and, through its generally bushy or fastigiate ramifications of nearly equal height, projects beyond the paper, the preparation of it must be begun by placing the upper part of it on the paper in such a way that it does not project, and then bending back the main stem so that the roots point upward, but do not rest at all, or but slightly, upon any other organ of the specimen.

Before preparing a specimen that exceeds the length of the paper, there is one essential point to be first examined, and that is what part of it shall by preference be given the most prominence. It is difficult to establish a rule for this, for it is rather a question of tact and experience. With a little practice the student will easily become able to judge what should be done. Sometimes it will be the summit, and

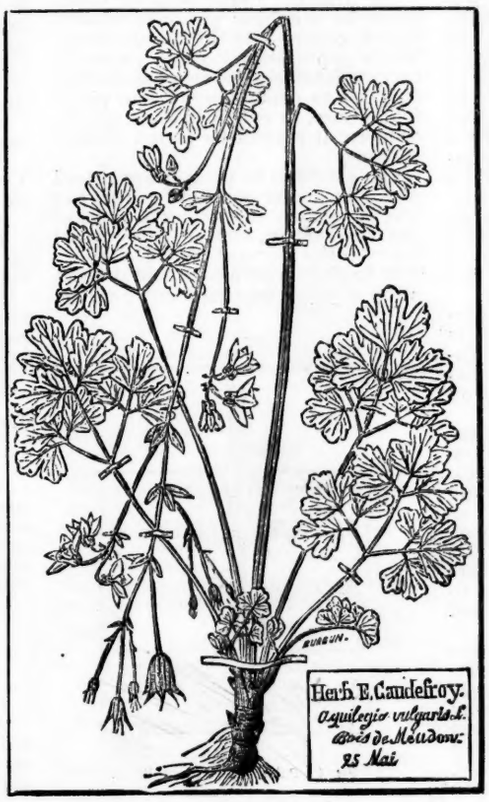


FIG. 1.—Mounted plant.

at other times the middle part or the base, that will be applied to the paper.

After this, the parts that project above and below will be arranged in the most suitable manner. As a general rule, however, the specimen ought to be bent at that part that requires as slight a flexure as possible to be made.

When the specimen is large, a single one may cover the sheet. If we are dealing with a small one, several may be laid down, until the entire sheet is covered. In this case care must be taken that no earth adheres to the roots to soil the flowers of the other specimens.

If the specimens are of such a size that they can be placed side by side, they should be laid in opposite directions, so that the flowers and roots of one shall not come into contact with the flowers or roots of the others.

The leaves should always be spread out with care, that is to say, they should not be allowed to assume other forms than those which they exhibit in nature. Yet, if they are not naturally plane, a few of them should be spread out flat so that the form and dimensions of the limb may be judged of, while the rest of them should be allowed to retain their natural habit. Moreover, the leaves should never be all arranged with the same surface upward, for it is necessary that both the upper and under surfaces shall be seen without having to turn the specimen over. If the leaves are too numerous, a few of them may be removed; but the removal should be done in such a way as not to give a false idea of their position upon the stem and branches. This may be accomplished by allowing their base to remain. The branches themselves, if too numerous, may likewise be removed in part, a sufficient number being left to give the specimen a form that in a manner recalls the general aspect of the plant. It is useless to add that, while endeavoring to preserve the plant's habit, we should also try to give the specimen a certain elegance of appearance.

As a general thing, the flowers should not be suppressed, unless the inflorescence is bulky. If it be too long, it may be bent as we have indicated with repect to the branches. Moreover, when collecting specimens, those always should, if possible, be selected which, while giving an idea of the general form of the species, are, as regards size, intermediate between the smallest and most robust individuals. In proceeding thus we need not have recourse to suppression or bending.

In the different plants in which the lower leaves exhibit no perceptible difference from the upper ones, two cases present themselves—either the upper part of the stem only or the entire plant may be dried. In the first case, if the inflorescence is developed, we may content ourselves with taking only the upper part of the plant, of the size of the sheet of paper; if not, we may, without inconvenience, cut specimens that shall be one or two times longer than the paper. In the second case, that is, if we desire to have the plant in its entirety, it should be cut 12×12 inches, and each part be prepared by itself, and the two be united after drying. This is the best way in which to prepare large plants, such as *Sonchus palustris*, *Epilobium hirsutum*, etc.

The flowers should be prepared with care, and without altering their natural arrangement.

Yet, if the inflorescence consists of too large a number of flowers, and time

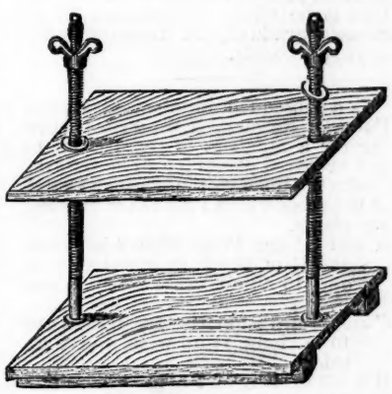


Fig. 3. Herbarium Press.

does not permit of preparing all of them thus, it will be necessary to detach and dry some of them by themselves with particular care. This often becomes necessary, moreover, as a consequence of the bulk or number of the leaves or ramifications, which might prevent perfect desiccation, or break some portions of the flowers.

Polypetalous flowers should be opened and spread out in such a way as to allow their interior to be seen well. If irregular, it will be well to prepare

each of their parts separately. In most cases it will answer to so place them that the special form of each division of the limb may be seen; but, whether they be regular or irregular, a few of them may be detached and dried by themselves, and arranged in the best way possible, either in their entirety, or by splitting them longitudinally. It will prove serviceable in some cases, as for example in the labella of the *Cypripedia*, to interpose in their cavity either cotton or, with a larger number of plants, pieces of paper, so as to hasten the drying, and render the study of them more easy later on.

Thus dried, these flowers may be glued to small sheets of white paper, and put with the specimens to which they belong. In many cases, the study of the various parts of the flower will be considerably simplified by taking like precautions in the preparation of the calyces, stamens, pistils, etc. In the corymbiferous Compositæ (the Carduaceæ, among others), which sometimes have extremely large capitula, and the drying of which would be slow, and pressing difficult, the heads and stems may be split longitudinally and then separated. This process has the advantage of rendering the herbarium packages less distorted.

When once the specimens are arranged upon the sheet, the latter is closed, and a drier put upon it. Another double sheet is placed upon this and covered with a drier, and so on up to the last.

We may add that it is always extremely necessary to place a temporary ticket in the sheet with each species, giving the name of the plant, the date on which and the place where collected, the nature of the soil, the exposure, and the altitude at which it grew. In place of tickets, numbers may be substituted, corresponding to those of a list in which are inscribed the data that precede.

When the last specimen has been taken from the box, there always remains a certain quantity of earth, which should not be thrown away until it has been examined, as it often contains different things that it is of interest to preserve, such as petals, bulbs, seeds, etc., as well as specimens of minute plants.

The entire collection, having been prepared, is put into the press (Fig. 3). It is essential, if the press be a screw one, like the one here represented, that the first pressure be not too great, but that it be slight at first, and be increased gradually in measure as the drying proceeds.

In a subsequent number, Mr. Robert Palm, of Newark, N. J., writes: Having for a numbers of years collected and prepared plants for an herbarium, I take the liberty of inclosing a sketch of the press which I made for pressing my plants.

A and A′ are 16 in. high, 4 in. wide, and 1¼ in. thick, mortised at *a*, *a*, *a*, *a*, to admit cross pieces B and F.

C and C′ are supports for B. and are 10 in. long, 1½ in. wide, and 1 in. thick.

B is 15½ in. long and 10 in. wide.
D " 14½ " " 10 "
E " 9 " " 4 "
F " 15½ " " 4 "
G " 20 " " 5 "

H, a plate of iron countersunk to admit bottom of screw I.

I, a one-inch screw, with thread for about 12 inches, and the head M, through which the bar L, slides.

J and K, nuts.

N represents the pads or books under pressure.

The frame of the press consists entirely of wood. I used white pine, and the screw and cross-bar of wrought iron. A cast iron bench-screw, which can be obtained at any hardware store, will of course answer the same purpose.

It is essential to let the bottom piece B, and the head piece, F into the sides A and A′. The cover D fits loosely, so as to slide easily between the perpendiculars. The top G although not essential, tends to keep the screw from shaking. The nut K merely guides the screw, all the pressure bearing on the nut J.

The press could easily be modified by securing the screw to the cover D by means of a collar, so as to raise the cover upon raising the screw; the cover should then have guides at each end.

For driers, I found pads or books made by stitching pieces of unsized carpet papers—the thick gray kind, which approaches blotting paper in texture, is preferable—very convenient. It is best to make them of four pieces folded once, so as to hold seven plants, or more, if several be placed in each opening.

The plants to be pressed are placed neatly in double sheets of paper, the poorest quality newspaper answering the purpose best, and are then placed between the leaves of the driers; it is best to place within each folded sheet a slip of paper, bearing name, locality,

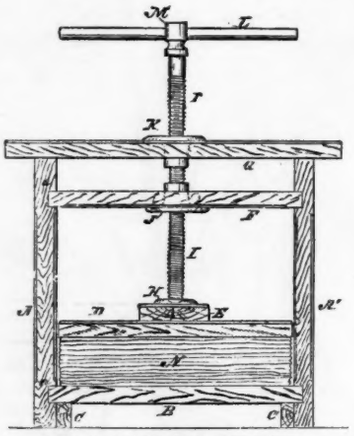


Fig. 4. Palm's Herbarium Press.

and date when found. The plants which remain within the sheet may then be laid away until it is convenient to mount them on proper paper.

In mounting plants it is preferable to mount but one species on the same page, and to have loose sheets, and not a bound herbarium; the plants then can be arranged in their proper orders, and new specimens can always be placed where they belong.

The following is the manner in which I name the specimens:

32. Melilotus alba. White Melilot. — Perth Amboy, N. J. Aug. 5th, 1885.

The number has reference to the order, as arranged in Gray's "Manual of Botany." The number should also be placed on the slip.

Processes for Coloring Iron.

The *Metallarbeiter* gives the following processes for the coloration of iron. Make a mixture of a solution of 140 grammes of hyposulphite of sodium in 1 liter of water, and of a solution of 35 grammes of acetate of lead in 1 liter of water. Heat to the boiling-point, then plunge in a piece of iron, which takes a blue coloring like that which is obtained by annealing.

If the objects, whether wrought or cast iron, be plunged into melted sulphur, to which has been added a little soot, there will be formed a black coating of sulphite of iron susceptible of a very beautiful polish,

Bleaching and Dyeing Ivory.

According to Kayser, ivory is best bleached by first treating it with ether or benzin to remove every trace of fat, then placing the dried object into a mixture of equal measures of commercial peroxide of hydrogen solution [containing about 3 per cent by weight of H_2O_2, and known in trade as "of 10 volumes"] and water. They are allowed to remain in this until the proper effect has been produced, when they are removed, washed with water, and dried.

When ivory is to be dyed, it must first be deprived of grease or fat by by ether and benzin, then treated for two minutes with water containing 1 per cent of hydrochloric acid, after which it is placed into one of the following solutions, previously warmed, and left there for ¼ to ½ hour:

1. *Red:* 1 part of fuchsine in 300 parts of water, mixed with 10 parts of diluted acetic acid or vinegar.

Or, 2.5 parts of eosine in 500 parts of water, with 1 part of tartaric acid.

2. *Violet:* 5 parts of methyl violet in 1,000 parts of water, with 3 parts of tartaric acid.

3. *Blue:* 2 parts methylen-blue.

4. *Green:* 3 parts of Victoria-green or "brilliant-green" in 2,000 parts of water, with 100 parts of vinegar.

5. *Yellow:* 4 parts of naphthol-yellow in 1,000 parts of water, with 150 parts of vinegar.—*Chem. tech. Central-Anz.*

Lotions for "Blackheads" in the Skin.

After having expressed the fatty matter with the fingers, use some slightly alkaline lotion to dissolve the excess of fatty matter and prevent its accumulation in the little glands. The following solution is very appropriate:

Water	300 grammes.
Borax	10 "
Ether	10 "

It can be diluted with half water.

A little later some astringent lotion will dry up or lessen the sebaceous secretion, and will prevent the too rapid return of the trouble.

It is also well not to neglect the use of toilet soap on the face. Water from soapwort or Panama wood cleans the skin as well, if not better, and has not the defects and inconveniences of soap.

Add to this a very moderate use of wine, coffee, and tea, an absolute suppression of cordials. Avoid fatiguing exercises, tarrying in hot or smoky places, great nervous excitements; conditions which favor the exaggeration of the glandular secretions of the face.

Instead of squeezing the "blackheads" with the fingers, it is better to press the little square hole of a watch-key upon the spot.—*La Nature.*

Silvering Paste.

Nitrate of silver	12 parts.
Common salt	50 "
Cream of tartar	30 "

Grind (dry) these three substances very finely in a mortar, then triturate with a little water to form a homogeneous paste; keep the paste sheltered from the light.

To silver, rub the copper or brass article with the paste, previously separating the verdigris from the copper, until it is thought that the layer of silvering is thick enough; then wash and wipe hard with a chamois skin. In replacing nitrate of silver by cyanide of silver, a dry powder is obtained, which is to be moistened when used. But it is more dangerous to use.—*La Nature.*

A CONVENIENT BLOCK FOR BLOWPIPE WORK.

THOSE who have heretofore used a piece of charcoal on which to melt small specimens of metal with the blowpipe will see at a glance the advantages of the improved soldering, melting, and ingot block herewith illustrated. It is made of homogeneous asbestos, with a narrow strip of wood on each side to protect the hands from the heat, and with a thin coating of whiting in the bowl to prevent borax or other flux from adhering. The asbestos is not only itself almost entirely unaffected by the heat, but it is so poor a conductor that one can hold this little block, about six inches long, in the hand for a sufficient time to conduct any ordinary melting without inconvenience from the block becoming too hot to hold. It is also so porous that an article can be readily fixed on the block in any desired position with pins or other fastening, as shown in Figs. 1 and 2, where a ring and watch case are shown affixed in convenient position for an ordinary soldering operation, as the work is done by jewellers.

Fig. 3 shows scraps of metal in the bowl with the blowpipe flame directed upon them, and Figs. 4 and 5 give the block itself in different positions. Connected with the bowl by a narrow inlet is a shallow depression, into which, on holding the block vertically, with a small asbetos cover pressed down by the thumb over this depression, the melted metal will run, and form an ingot. Fig. 4 shows such an ingot as being removed, and the other views clearly illustrate the varying details, Fig. 1 showing the asbestos cover set vertically just beyond the apex of the flame, to better concentrate the heat on the work. Asbestos board has heretofore been used to a considerable extent by jewellers, several thicknesses being united to form a base on which to melt metals by the blowpipe; but the different layers did not make a compact and homogeneous mass, and so would curl up and separate which is not possible with this form of melting block. The many uses to which this little device is applicable are so obvious that a detailed reference thereto is hardly necessary.

Asbestos blowpipe block.

Apart from its applicability in the trade of the jeweller and silversmith, and in various other kinds of fine soldering work, chemists and mineralogists will at once see in it an extremely convenient means of making many tests which have heretofore been possible only in a much more roundabout way, with more complicated aparatus, and generally at considerable expense. It is so simple a thing to fit up a blowpipe, with which fragments of almost all the metals may be melted with the heat from even a common tallow or wax candle, that there is no more convenient way of making many most interesting and valuable experiments. —*Sci. Amer.*

Paper almost Incombustible.

TAKE 1 part alum to 3 parts water, dip the paper twice into this solution, in a boiling state, and let it dry.

Curiosities of Medicine in Louisiana.

A RECENT writer in the *New York Daily Tribune*, who signs himself LOFCADIO HEARN, gives a curious account of Creole medicine, as well as a description of certain peculiarities in the types of prevalent diseases. After referring to the influence of Voudooism in the popular treatment of maladies, he says: Among several curious remedies for which I had to thank these mysterious people I will cite only two. The first was a cure for bilious fever, which cure was brought to me in a small earthenware jug, piping hot. It was a drink which had a reddish color, an agreeable odor, and an unpleasantly bitter taste. I was told to let the fluid cool before drinking, and not to be frightened at the results, which proved alarming, for dizziness and difficulty of breathing were among them. But the draught restored me to complete health, and I may say that I even felt unusually well for several months subsequently. I wanted to obtain the recipe from the negress who prepared the medicine; but this, to my surprise, she refused to give even in exchange for what I believed to be a rather handsome remuneration. Furthermore, she declared the medicine was *bien dangereuse*, that I could not use it without instructions, and that I could not find "the plant." I knew there were at least four ingredients in the preparation; but the color and odor, at least, were not due to any very unfamiliar simples.

The second remedy was a very simple one for inflammation or congestion of the eyes, and was told me by an old colored woman who had the reputation of being a Voudoo, but whom I never suspected of belonging to that confraternity. She was able to comprehend the interest I felt in Creole folk lore, and collected for me a number of little songs and proverbs in the patois. Her recipe was this: "Take a fresh Creole egg [egg laid in Louisiana], separate the yolk carefully from the white, and then beat up the white into a light, fine foam. Then take a strip of cotton or linen, about six or eight inches wide; fold up the egg-foam in it, so as to form a cataplasm wide enough to cover both eyes, and go to bed with the cataplasm well attached by knotting the ends of the linen or cotton folds about the head." This simple egg poultice, thus left to dry upon the eyes, proved in my case remarkably efficacious, although I cannot imagine that there is any special virtue in albumen. I must also state that I recommended the cataplasm with good results in instances where hot or cold compresses had failed, for some reason or other, to reduce inflammation.

Tisanes, or those preparations classified by our Creoles under the general name of teas (*thés*)—being infusions of medicinal herbs obtained by boiling the leaves—occupy a larger place in Creole medicine than do the tisanes recognized by English or American pharmaceutical science as worthy of classification. There are hundreds of them. Some are too familiar to need more than an allusion—such as the orange leaf, lemon leaf and sassafras teas. "*Mo pas boi di thé pou fieve li*" (I'm not going to drink tea for his fever), is a Creole proverb referring, not to tea proper, which is not a favorite beverage with our native French-speaking population, but to those warm herb infusions administered in fever.

For the treatment of chills and fever, several queer tisanes are recommended: 1. Tea prepared with the leaves of the pimento (pepper plant); 2. thick black coffee mingled with fresh lemon-juice, to be taken three times a day; 3. snake-root (*Serpentaria*) in whiskey—I do not know how strong the infusion is made; 4. tea made from the leaves of the *cirier-batard* (*Myrica Gale*), a small cupful to be swallowed three times a day. In addition to these hot drinks, alternated sometimes with draughts of claret or spiced beer, well heated, the patient may be ordered to put cayenne pepper in his shoes every day for nine days. In the absence of quinine or other recognized febrifuges, some of the above remedies are not to be scoffed at. The plant called by our Creoles the *cirier-batard* has, moreover, been utilized in various ways by regular medical science, owing to its astringent qualities. Its aromatic properties are said to have a purifying effect upon the air of the swamps, which it loves. In North America its geographical range extends from Louisiana to Greenland. The roots of the *Myrica* contain so much tannin that they can be utilized with success in the manufacture of ink.

But the most interesting fact contained in the above samples of empiricism is the mention of lemon-juice. Lemon-juice as a remedy for certain forms of fever was known to the Creoles long before Tomasso Crudelli discovered the reason of its value, and advocated its use in the marasmal regions of Italy. Only at the last meeting of the International Medical Congress, held at Copenhagen, the discoverer of the *bacillus malariæ* strongly recommended the planting of malarial regions with lemon trees, and addressed the learned body with success on the merits of lemon-juice as a febrifuge.

Coffee, considered a febrifuge in the domestic medicine of most hot countries, is administered largely in typhoid

fever; but the infusion is made with the green berries in whiskey, a dose three times a day. To alleviate the cerebral symptoms, a live pigeon is cut open, and the warm, bleeding surfaces applied to the head.

Leaves of the lettuce (*Lactuca*) are boiled to form a tea, said to be very efficient in cases of sleeplessness. This lettuce-leaf tea is administered in large quantities before going to bed.

Geranium-leaf tea, a delightfully fragrant beverage, is frequently given as a remedy for nausea. The interior of a fowl's gizzard, boiled with tea, is also recommended.

A cold in the head is treated in many ways, and also has its own special tisane—a sort of celery-leaf tea. The tea is sweetened with honey, and a few drops of paregoric are usually added. Among other remedies, I may mention doses of castor oil warmed with molasses; also roasted onions, with molasses and butter, to be swallowed before retiring; and finally, a gargle made with olive oil, honey, vinegar, and a little paregoric.

Boiled leaves of the honeysuckle are said to make an excellent gargle for sore throat. Parsley leaves in vinegar are also used exteriorly. Another exterior application consists of a white onion roasted in the embers, then cut in half, and each half applied to the neck until cold. This operation is repeated three times each night.

The honeysuckle (*Lonicera Caprifolium*) is known to medical practice. The expressed juice of the plant has long been recommended as a remedy for the stings of bees or wasps—to be rubbed into the puncture. The fruits of all the varieties are said to be emetic and cathartic; and some varieties have been used by physicians in practice. The variety called *Periclymenum* has been used in France as a gargle. Is this bit of Creole medicine a colonial inheritance from the mother country?

There are other local remedies for sore throat, of a character altogether too mediæval to allow of their being mentioned in print. I doubt, however, if these are Creole; for I have heard of similar medicine among the peasantry of Europe.

Indigestion introduces us to another tea, very fragrant and soothing, made from bay leaves and leaves of the mint-plant. A little whiskey is usually added. Sugar water is also recommended.

Melon-seed tea is given in jaundice, and also in several other forms of disease. But the great remedy is carrot-juice; the carrots are first scraped, then squeezed through muslin. A cup of this juice is believed to be efficacious in the extreme.

For tetanus, cockroach tea is given. I do not know how many cockroaches go to make the cup; but I find that faith in this remedy is strong among many of the American population of New Orleans. A poultice of boiled cockroaches is placed over the wound. In Louisiana this insect (*Blatta occidentalis*) grows to a positively amazing size; and a very few would make quite a large plaster. Oil of copaiba is also recommended to rub the body with in case of tetanus; but there is nothing especially Creole in the use of the latter remedy. Powdered sulphur, salt, and tallow are likewise used as a mixture to rub the person with; and cockroaches fried in oil with garlic for indigestion.

An immense variety of remedies for diarrhœa are known in Creole medicine; I will name only a few. Tea made with an infusion of pecan husks, pecan bark, and the leaves of the pecan tree steeped in whiskey are very popular. This is doubtless due to the astringent quality of the pecan, rich in tannin. Another remedy consists in a hot drink made by roasting rice, and subsequently pouring boiling water on the grains. Hot water in which toast has been steeped is also given. Flaxseed tea, administered in so many ailments, is recommended likewise. Hot tea made with dandelions is said to be another efficacious cure. Milk and starch intermingled are often taken; also eggshells ground or powdered, and drunk in water. Finally the banana fruit (used otherwise in a hundred ways by our motley population) is advocated as possessing excellent curative properties. The fruit should be plucked or selected green, cut into thin slices, placed in a vessel, softened to a pap by having boiling tea poured upon it, and then absorbed.

As remedies for palpitation of the heart there are other extraordinary "teas." One, to be drunk morning and evening, is made by boiling parsley-root. Another is made with asparagus. A third is prepared with wild sage, "golden rod" (*Solidago odora*), and a plant called *l'herbe à chevreuil* by Creoles, which I cannot at present obtain the botanical name of. This must be taken three times a day.

There is also a tea for rheumatism made from the leaves of the plant called by the Creoles *chou-gras*. An infusion of the berries of the same herb in whiskey is used to rub the afflicted part with. This herb is neither more nor less than the common pokeberry (*Phytolacca decandra*).

Chilblains are not altogether common in Louisiana, where the frosts are light and cold "spells" have rarely a duration of more than three days. Lemon-juice is used to rub the place with. There are several decidedly original remedies for other ailments of the feet. For cold feet it is recommended that the members be wrapped in newspapers, and the socks or stockings pulled on over the paper. This is also said to prevent cramps. For sore feet foot-baths of salt (rock salt) and water, or lye and water, or hot water poured over fresh mint-leaves, or elder-leaves are administered.

There are Creole remedies for headache, which by reason of their savage simplicity seem worthy of an African origin. These chiefly consist in applications to the forehead, temples or head of fresh leaves, which are changed as soon as the leaf begins to dry or wrinkle up. Leaves of the wild plantain are very popular for this method of cure; fig-leaves, elder-leaves, and orange-leaves are also used. But the orange-leaf is usually smeared with lard before being applied. Another remedy is to pour a little hot water, mixed with laudanum, into the ear. Wild plantain-leaves, dipped in cold water, are very often used also to allay inflammation of the eyes, when the fresh skin of a certain fish, or the excellent egg-poultice, is not immediately procurable.

In swelling of the glands of the throat the swollen gland should be well rubbed with tallow; and the tallow smeared on thoroughly, melted by holding close to the skin without actually touching it, the blade of a knife heated in the flame of a lamp or candle. Some say the point of the heated blade only should approach the skin, and that the point should be moved so as to describe a cross immediately over the gland. This seems to be a purely superstitious idea.

In erysipelas a poultice of almond-leaves and rice flour is generally applied to the sore. Almond-leaves, it may observed, are also considered to possess special virtue and healing qualities in relation to the affection of the eyes.

For overheating of the blood—an imaginary disorder—tea made with the leaves of wild chicory is recommended, but tea made with the leaves of the *patate de Guinée* (potato vine), or leaves of a plant called *hooli* may be substituted. Somebody told me that *hooli*, or, as he termed it, *ahouli*, took its name from the Spanish *alheli*, or alete, a corruption of the Arabic *alkhaili*, "the gillyflower." But I am inclined to suspect an African origin for the word; moreover, the *hooli* shown me strongly resembles the plantain, having a large fleshy leaf, which, when steeped in water, makes the liquid ropy by reason of some viscid secretion. I must leave botanists to decide the scientific appellation of this, as well as of several other queer plants, one of which, bearing a little blue flower, is used to make a tea said to allay nervousness.

A favorite medicament for teething is furnished by the *chien dent*—dogs' grass, quitch grass, or couch grass (*Triticum repens*)—which grows wild on many of our New Orleans sidewalks or *banquettes*. An infusion of the leaves is used to rub the infant's gums with.

There is a very funny remedy tor earache which is popular among the most ignorant classes of French-speaking colored people, and perhaps among many equally ignorant whites. Of course, the familiar plug of wool or cotton steeped in laudanum is in vogue here as well as everywhere else; but a much more efficacious remedy is alleged to be a plug of *laine-de-negre* poked into the ear. And the oddest idea connected with the practice is that the wool in question must not be asked for, but must be snipped off the owner's head surreptitiously, in order to render it efficacious. When duly stolen, and moistened with laudanum, the wool never fails to cure!

These recipes may serve to convey some idea of the nature and variety of Creole medicine, a subject much larger however, than this essay can justly indicate, and including much that must be left to the ethnologist and the folklorist to properly utilize. Probably Angelo de Gubernatis might find in Creole medicine-lore some new material for his "Mythologie des Plantes;" but this material belongs to a class of the theme which I cannot at present attempt to touch. It has special interest only to folklorists and those who have the leisure and the opportunity to study the question of African survivals in the West Indies and America. On the other hand, the herb medicine of the Creoles deserves some scientific attention. So far as my limited observation enables me to judge, the most valuable part of Creole medicine has been developed by climatic necessities. Febrifuges, indeed, form the most important portion of this domestic medicine; and the art of preparing these, as well as various sudorifics and diet-drinks, seems to have been evolved by an experience not without serious value.

Coloring Copper and Nickeled Articles.

UPON copper, well cleaned from verdigris, *eleven different colorings* can easily be obtained, and *eight* on nickeled articles of any metal, by steeping in the following bath:

Acetate of Lead..... .....20 Grammes.
Hyposulphite of Sodium.....60 "
Dissolve in a liter of water.

Warm to the boiling point, and then dip in it the cleaned copper or nickel-plated articles. At first a *gray* color is obtained. Continuing the immersion, we next have violet, and then, successively, chocolate, red, etc., until we reach blue, which is the last shade.

Of course, there is a certain knack in getting at a definite point, an intermediary tint. Once obtained, pass a light mixture of white varnish over it, in order to set the color.

The ingredients which enter into the composition of this bath cost only five centimes (about one cent) a liter. The selling price lies entirely on the handiwork and necessary care.—*La Nature.*

IMPROVED WASH-BOTTLE FOR LABORATORIES.

By this simple device the washing of precipitates, and the cleansing of vessels used in the process of analysis, which before required the use of the ordinary wash-bottle, can now be done with much more facility and in a shorter time.

It consists, essentially, of a thin glass flask C, placed about three feet above the level of the working-desk, and closed by a three-hole rubber stopper. Through one of the holes issues a rubber or glass tube D, with rubber connections, descending to the desk and ending in a glass nozzle. Connection is made by a second hole in the stopper with a reservoir bottle A, placed above the top of the wash-bottle. In the third hole is placed a glass tube I, bent at an angle to keep out dust. On filling the flask from the reservoir —the flow being stopped by a pinch-cock—the water is started by suction from below, and the stream through the nozzle can be regulated or stopped at will by a pinch-cock placed conveniently to the hand, the height of the water flask furnishing the pressure, which is sustained by the siphon.

A Bunsen burner, H, can be placed underneath the flask, and the water heated when it is so desired. Hot water, as well as cold, can thus be used in treating precipitates. The large bottles E and F, with the accompanying tubes, show a convenient arrangement for holding and delivering any solution.—H. B. Battle in *Sci. Amer.*

Preserving Cocaine Solutions.

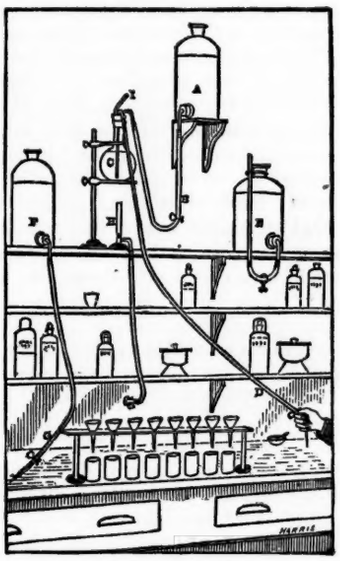
In a paper recently published in the *Droguisten Zeitung* (and *Pharm. Z.*) it is recommended to prepare stable solutions of cocaine by sterilizing them. Several methods are suggested.

1. Weigh the hydrochlorate of cocaine upon a watch-glass and place this, together with the requisite vials, filter, small glass-funnel, and all other implements which the solution will afterwards come in contact with, into a drying oven, where a temperature of 100° to 110° C. (212°–230° F.) is maintained for several hours. The requisite water is also heated for a like period. The solution is then prepared, filtered while still as hot as possible, and the vials immediately stoppered with tight plugs of pure cotton.

2. In a graduated cylinder weigh the requisite amount of hot water, add the weighed cocaine salt, and after the volume has been marked, add as much more water as will evaporate in the drying oven or on the water-bath in a few hours (about half of the volume of the solution). Then heat on the water-bath until the excess is evaporated and the former level (or the original weight) has been reached. The solution, if clear, may be at once transferred to vials which are stoppered with plugs of cotton previously sterilized by heating at 100°–110° C. Since hydrochlorate of cocaine requires a heat of 185° C. (365° F.) to melt, and does not even decompose then, there can be no harm in sterilizing its solutions at the above-named temperatures.

Note by Ed. Am. Drugg.—Among the substances mostly recommended as preservatives for cocaine solutions are salicylic and boric acids, carbolic acid, thymol, and camphor. Of these, salicylic and particularly carbolic acid have been found, by experience, to be irritating in many cases. Thymol appears to be better in this respect, but boric acid or camphor are unexceptionable. Of boric acid a cold saturated and filtered aqueous solution, or one containing as much as 10 grains per fluid ounce, may be used. Camphor is used in the form of camphor water. When cocaine solution is to be injected hypodermically, it is preferable to omit the boric acid; in fact, it is always best, in this case, to use a freshly prepared solution containing nothing but the alkaloidal salt and distilled water. But if it is necessary to keep a solution for some time, probably the best way is to add to it a few drops of *chloroform*. This will prevent the development of fungi and will not act as an irritant or antagonistically to the drug. The proper proportions are:

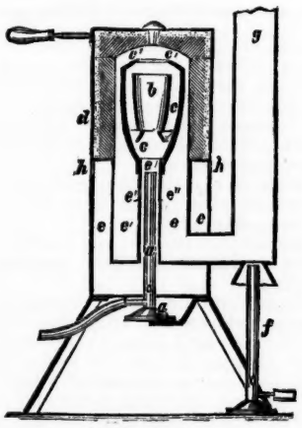
Cocaine Hydrochlorate.. 4 parts
Distilled Water, to make 100 "
Purified Chloroform, 2 minims for each fluid ounce.



Laboratory wash-bottle.

The Synthesis of Cocaine.

As was to be expected, such an important organic compound as cocaine, soon after its first appearance, attracted the curiosity of the chemist, and much is already known regarding its relation to other bodies existing alongside of it in the coca leaf, as well as to other substances. More than six months ago already, it was announced that two chemists, Mr. W. Merck and Prof. Skraup, each working independently, had succeeded in converting ecgonin—



Crucible furnace.

the troublesome by-product obtained in the manufacture of cocaine—into the latter alkaloid. Skraup's method yielded only a very small percentage of cocaine. This has now been partly overcome by W. Merck, who starts from anhydrous ecgonin. The method by which the conversion is brought about need not be detailed here, as it is evidently still capable of improvement. It will be of interest, however, to learn that the reproduction of cocaine from its products of decomposition has already been accomplished.—After *Ber. D. Chem. Ges.*, 1885, 2,952.

AN IMPROVED CRUCIBLE FURNACE.

The apparatus here described has been patented in Germany (No. 30,208) by the "Deutsche Gold und Silver-Scheideanstalt, vormals Roessler," in Frankfort-on-the-Main.

The cold air enters at *h h*, is warmed in its passage through the outer mantle, *e*, by the products of combustion, which pass off through the inner mantle *e'*, then enters the Bunsen burner *a*, and another portion of it passes on the outside of this, thus furnishing enough hot air to completely burn the gas issuing from the burner. The combustion takes place below the crucible *b*. The flame and hot gases pass first through the perforated cover *c'*, then through the outer mantle *e'*, where they give up a portion of their heat to the cold air entering from the outside, and finally escape through the chimney *g*. In order to create a sufficient draft, a separate burner *f* is placed under an opening in the chimney.

Specific Gravities of Some Fixed Oils.

E. Dietrich has determined the specific gravity of a number of fixed oils in a pure condition, at the temperature 23° C. (73.4°F.). The following are the results:

Olive Oil (Provence)	0.912–0.914
" " green	0.909–0.915
Sunflower-seed Oil	0.920
Cotton-seed Oil	0.917–0.921
Peanut Oil	0.917–0.918
Rape Oil	0.913
Sesame Oil	0.919
Castor Oil	0.964

—*Dingl. Pol. J.* and *Rep. Anal. Ch.*

Neutralizing Cordial.

℞ Rhubarb, coarsely powd	2 oz.
Carb. Potassium	2 "
Golden Seal	1 "
Cinnamon	1 "
Sugar	4 lb.
Brandy	1 gall.
Oil of Peppermint	20 min.

Macerate the rhubarb, golden seal; and cinnamon in half a gallon of the brandy for six hours at a gentle heat, transfer to a percolator and displace, first with the remainder of the brandy, and afterward with enough water to complete one gallon of the percolate. To this add the carb. potassium, the sugar, and the oil of peppermint, previously rubbed with sufficient sugar to absorb it. When the sugar is dissolved, filter through paper. The substitution of diluted alcohol for brandy to exhaust the drugs affords a preparation less pleasant, but less expensive and quite as efficient.—*Drug. Circ.*

Lemon Sugar.

Citric Acid	2 oz.
White Sugar	5 lbs.
Essence Lemon	1 dr.
Alcohol	2 drs.

Add essence to alcohol, and allow sugar to absorb the mixture. This quantity will make a quart of water into lemon syrup, or two tablespoonfuls will make a tumblerful of lemonade. Or:

Tartaric Acid	7 lbs.
Bicarb. Sodium	6 "
White Sugar	30 "
Gum Arabic	2 "
Oil of Lemon	¼ lb.

Powder, and dry well before mixing. Keep well corked.

Ten grains of tartaric acid pressed into a cake with moist, yellow granulated sugar, dried, and impregnated with a few drops of essence of lemon, will provide a tumblerful of lemonade; but the oil of lemon is apt to become rancid before the cake is used.—*Drug. Circ.*

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FRED'K A. CASTLE, M.D., - EDITOR.
CHAS. RICE, PH.D., ASSOCIATE EDITOR.

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EDITORIAL.

WE have letters quite often from correspondents who fail to supply their address, and thereby render it very difficult for us to answer them. Indeed we have frequently spent more time in trying to discover where to direct a reply than would be required in answering it. In most cases the omission is, doubtless, an oversight and not habitual, but it might always be avoided by the use of a printed letter-heading. We have said *always*, but there are exceptions, for we have received most courteous letters to which we would be glad to reply, but find the printed address to read something like this:

The Boss Drug-Store,

Cor. Main and State Sts.,

PODUNKVILLE.

Thereupon we look in the waste-basket for an envelope stamped Podunkville with a view to discovering in what particular State this *particular* Podunkville is to be found, and at length find one which has the only postmark in the least resembling this name; but the portion which should show the initials of the State is a mere blot, or so faint as to be illegible. So we go to our postal-guide and find still less comfort. Either there are no post-offices of that name, or there is about one to every State and Territory.

If correspondents appreciated the very great annoyance caused to editors and publishers by this seemingly trifling oversight, they would be more careful, and their letters would often receive more prompt attention.

INSPECTION of the holiday number (vol. IX., No. 1, Jan., 1886) of VICK'S *Floral Guide* leads us to wonder why it is that pharmacists do not make the sale of seeds for flower-culture as much a part of their business as the sale of seeds for medicine or for bird's food? There is, generally speaking, no one in a community who is more familiar with botany than the apothecary, or more competent to afford information about the essentials of plant-raising than he; and a development of his business in this direction is certainly quite as legitimate as in some others that are more customary.

We have before spoken of the advantages to be gained in a decorative way from the use of growing plants in show-windows, and the idea might be worked out with profit in the direction of advertising the sale of seeds. With a little management one window might easily be converted into a miniature conservatory and made a museum of "flowers in season," with labels giving name and character of each plant, etc., including the information that the seeds can be had inside, where orders will be taken, also, for all kinds of ornamental plants. By previous arrangement with some such reliable dealer as Mr. Vick, of Rochester, such orders can be filled direct and the transaction will afford a source of revenue rather more lucrative than the sale of postage stamps and will require less capital and labor. Now is the time to arrange for any such scheme, and seeds that are to be used next summer should be forced into blossom at once if they are to advertise next season's stock.

DR. B. F. DAVENPORT, of Boston, one of the Analysts of the State Board of Health, etc., makes an interesting report of his labors during the past year which is worthy of much attention. The entire report is too voluminous for extended quotation, but the following facts are among the more prominent of its features:

Out of 621 samples of drugs examined, 285 (45.8 per cent) or nearly half did not conform to the requirements of the current Pharmacopœia.

Bismuth Subcarbonate and Nitrate—24 out of 34 samples contained an excess of arsenic.

Ferrum and its Preparations—Only 3 out of 21 samples were up to the standard quality.

Iodine Tinctures—Only 3 of 12 samples contained standard quantity of Iodine.

Potassium Bromide, 7 samples—All contained excess of alkali, but were of fairly standard quality otherwise.

Potassium Iodide, 8 samples—All but one had an excess of alkali, and all but one an excess of chloride.

Potassium Bitartrate, 17 samples—11 with excess of lime salts, and 8 an excess of chloride.

Spir. Ætheris Comp., 19 samples—Only 2 of which contained any fairly proper amount of the ethereal oil, and one other a slight amount of this most essential and expensive ingredient. That which is usually sold for this preparation is really only a by-product from the rectification of true ether. It is obtained after the ether of proper quality has all been distilled over; that which comes off after that consists of a mixture of ether and alcohol impregnated with a very little ethereal oil. This mixture is then further prepared by being variously modified by the addition of alcohol, ether, or water, and of fixed oils, so as to imitate, in taste, smell, opalescence, gravity, and other physical qualities, a standard sample kept for this purpose. The usual reason assigned for this fraud is the costliness of the true ethereal oil, for which it takes about fifty parts of alcohol to make one of the oil. It is, therefore, necessarily an expensive preparation, yet this hardly justifies the substitution of a cheaper, but nearly worthless article. The true preparation is most easily told from the false by the fact that although it will, even when old, give hardly any precipitation with barium chloride, yet its residue, left after ignition, will give a heavy precipitate. This difference does not exist in the case of the spurious article.

Spirit Ætheris Nitrosi, 23 samples—6 contained between 2 and 3% of ethyl nitrite, 14 had between 1 and 2%, while 3 fell below 1%.

Opium, Powdered, 5 samples—None of which came up to the minimum standard.

Opium, Tincture, 51 samples—10 of which reached the minimum standard of 1.20% of morphine, and 7 came within 10% of it.

Cinchona Bark, Powd., 11 samples—Only 4 containing the minimum requirement of alkaloid.

Quinine Pills, 23 samples—2 samples from one maker and one sample from another did not come up to standard quality, and a very general improvement was remarked in two series of analysis, as regards approach of the standard amount of salt.

Iron and Quinine Citrate—Only 1 of 12 samples came up to the standard 12% of alkaloid, and only 6 came within 10% of the standard.

Iron and Quinine Citrate Liquor—3 samples gave 1.83, 0.93, and 6.95%, the standard being 6%.

Elaterin—1 sample of inferior quality.

Chloroform, 15 samples—Of which 1 was of the standard quality of the purified form; all the others were the crude variety.

Aloes, Powdered, 12 samples—Of which but 5 were of proper quality as the purified drug, all the others were crude drugs.

Copaiba, 4 samples—2 of which were of proper quality.

Creasote, 5 samples—Of which two were up to standard.

Saffron, 5 samples—None of which were saffron, but all were safflower.

Ergot, 4 samples—2 of which were poor and damaged.

Hyoscyamus, 2 samples—1 damaged.

Jalap, 33 samples—Only 12 of which came up to the standard requirement.

Cloves, 12 samples—Of which none were satisfactory.

Nearly all the other drugs examined were satisfactory, or came very near to the standard of quality.

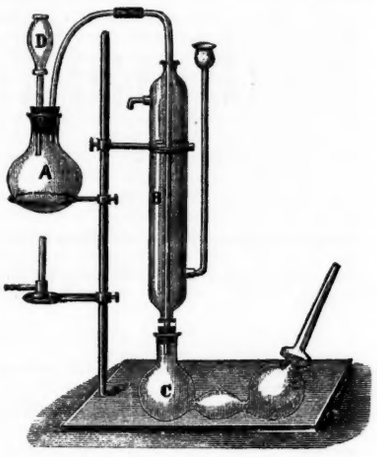
The work of the Board in this direction cannot fail to have a good effect upon the drug trade of that section of the country, and it is gratifying to observe the favor with which it has been received by pharmacists. This is, doubtless, largely owing to the fairness, and the absence of a spirit of captiousness, which characterize the efforts of the Board.

THE Secretary of the California Pharmaceutical Society and College of Pharmacy, Mr. Charles M. Troppman, desires us to announce that he is anxious to open correspondence with all the pharmaceutical societies in the United States for interchange of opinion. Address, as above, corner Folsom and Sixth streets, San Francisco.

APPARATUS FOR THE ESTIMATION OF AMMONIA.

THE apparatus here described has been devised by F. G. Holmes, for the determination of ammonia by distillation. Its special features are the upright condenser, and the absorption apparatus *C*, consisting of 3 bulbs, each of 2 inch diameter, which are charged with 25 C.c. of one-tenth normal sulphuric acid. The liquid or solid in which the ammonia is to be determined is put into the flask *A*, together with enough water (say 20 C.c.), if necessary; the flask is then connected with the condenser, and heat applied, so as to drive out most of the air by vapor of water. About 15 C.c. of a 20% soda-solution is then put into the funnel *D* (the stop-cock of which is omitted in the cut), and enough of it allowed to flow into the flask to cause a slow stream of gas bubbles to pass through the acid in the receiver-bulb *C*. When all the air has been expelled, no more bubbles will be visible. More soda-solution is now admitted, and the heat continued until the reaction is terminated. If the liquid in the flask becomes too concentrated, a little water may be added. Finally, a current of air is passed through the apparatus, and the amount of ammonia is determined in the receiver by determining the quantity of volumetric sulphuric acid not saturated.—*Chem. News.*

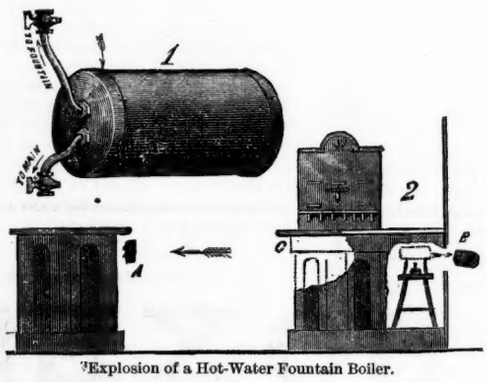
[In using an apparatus of this kind for the determination of *free* ammonia existing in a liquid, or of *free and combined* ammonia, the liquid or solid is put in the flask with water, and slowly heated, while a current of washed air is at the same time passed through the contents of the flask, best by aspiration at the further end of the receiver. Solution of soda is next introduced, and the distillation continued as described above.]



Apparatus for the Estimation of Ammonia.

EXPLOSION OF A HOT-WATER FOUNTAIN BOILER.

A CORRESPONDENT of the *Scientific American* describes an accident which occurred on the 18th of November, in Wilfert's drug store, northeast corner of Fourth and Walnut streets, Cincinnati, Ohio. During the winter, the firm sell "hot soda"; the water is heated in a copper boiler, twelve inches long, seven inches diameter, about one-sixteenth inch thick, the end slapped and soldered on. The only vent the boiler had was at the fountain faucets; it had no safety valve whatever. A little oil lamp was constantly alight under it, to keep it hot, and the pressure could accumulate to any extent. The result was an explosion. The front end was blown off to A, breaking the marble at C (one and one-half inches thick) in two, the main portion passing through a cupboard to B. Several persons were there, but no one was injured; all the plate glass in the store was broken. Perhaps this will lead to more care being used in regard to such apparatus in the future; a safety valve is needed just as much as in a boiler.



Explosion of a Hot-Water Fountain Boiler.

Australian Tin-Fields.

THESE differ in some respects from those of Perak; for instance, the ore in the latter country is usually found in the granite formations overlaid with lime and sandstone; whereas in Australia, New South Wales, no tin has been discovered under similar circumtances. At first it was thought that the tin ore in the New England district (Australia) was confined to existing shallow streams, and that it was useless to look for it at any considerable distance below the surface. It has since been discovered at various depths, from a few inches to 250 feet. The first deep-stream tin found, at Vegetable Creek, was in 1873. The lead was traced along a distance of four or five hundred yards. At a depth of fifty feet, very heavy deposits were found, under basaltic rocks. Several other leads were afterwards struck at greater depths, running almost parallel with the first. It is now believed that tin ore exists throughout all the old river beds and valleys of the district. Some of the deposits are covered with immense masses of basaltic rocks, which will require a heavy expenditure of capital to remove, but the ore is so rich and abundant that the outlay can very well be afforded. There is reason to believe, however, that many years will elapse before the surface mines are exhausted. During the year 1883, The Vegetable Creek Tin Mining Company obtained 2,000 tons of ore from an area of five acres. The secretary for mines states in his last report that the flow of basalt and other geological formations at New England district indicate that stream tin will last for many years.—*Chem. News.*

STEAM VACUUM PUMP FOR DISTILLATIONS IN VACUO.

THE principle of the filter pump has been explained so often (see our last November number, p. 214) that it may be assumed to be familiar to all our readers. The same principle and construction has long been employed in the construction of pumps, where the vacuum (or pressure) is obtained by a current of steam.

The application of such a steam vacuum pump to distillation under diminished pressure is illustrated in the accompanying cut. The still and condenser are of the ordinary construction. The receiver *C*, however, is a closed vessel, into which the pipe from the condenser fits air-tight. Upon another orifice, on top, a steam vacuum pump is attached, the current of steam passing down the pipe *A*, and issuing at *L* through an expanded pipe. The rapid jet of steam aspirates all the air from the receiver *C*, and, in consequence of this, the liquid in the still will boil at a much lower temperature. By careful regulation of the heat under the still—either open fire or steam—and by proper adjustment of the steam jet, a very low vacuum can be obtained.

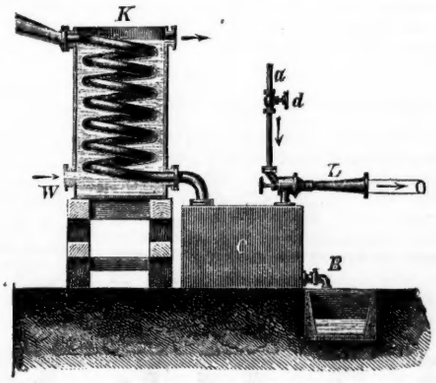
In the case of liquids, which, on distillation, produce gaseous products which are not intended to be condensed, these are, of course, carried off along with the air and vapor of water.

When volatile liquids heavier than water are to be condensed, the exit pipe of the condenser is made long enough to reach within a short distance (about one-half inch) of the bottom, and enough water is poured in to cover the end of the pipe.

If the liquid to be distilled is very light, and no lighter non-volatile liquid can be used as a layer to float on top, the steam jet issuing from the vacuum pump may be made to enter a second, efficient condenser in which both the steam and vapor of the volatile liquid are condensed together.

If the volatile liquid is alcohol, and the first condenser is kept properly cold, the steam vacuum pipe may be used unhesitatingly. Although it will aspirate some of the alcohol as vapor, yet the loss will not be important.

These steam vacuum pumps (steam jet pumps, or injectors) were first perfected by Körting, of Hanover, and may now be obtained everywhere. They may be had in all large cities, of all sizes, and for all purposes to which they can be applied, and are comparatively inexpensive.



Steam Vacuum Pump.

Waterproof Varnish.

Two kilogrammes of melted bitumen are poured into a receptacle heated by a mild fire. Add, while continually agitating, 500 to 600 grammes benzin, 200 to 300 grammes turpentine, and 200 to 300 grammes lamp-black.—*La Nature.*

Volumetric Determination of Iodine and of Iron.

E. FALLIERES recommends the following process for the volumetric estimation of iodide of potassium, or rather, of the iodine contained therein.

0.1 Gm. of the salt is added to any desired quantity (say 30 to 50 Gm.) of a 25% solution of ferric chloride, and the mixture distilled. Iodine will pass over and is to be caught in a receiver containing 5 Gm. of chloroform and 51 C.c. of a solution of hyposulphite of sodium of 0.3 per cent, or such a quantity that all the iodine liberated from the iodide of potassium may enter into combination according to the following reaction:

$$\underset{\text{pot. iodide}}{2KI} + \underset{\substack{\text{ferric}\\\text{chloride}}}{Fe_2Cl_6} = \underset{\substack{\text{ferrous}\\\text{chloride}}}{2FeCl_2} + \underset{\text{pot. chloride}}{2KCl} + \underset{\text{Iodine.}}{I_2}$$

When the distillation is completed, the excess of hyposulphite is determined by titration with a solution of iodine, containing in 1 liter 7.64 Gm. of iodine and 10 Gm. of iodide of potassium, so that 1 C.c. of it corresponds to 10 milligrammes of pure iodide of potassium.

The author suggests that this process may be used also inversely, for the determination of iron. In this case, it would only be necessary to use an excess of solution of iodide of potassium, and the amount of free iodide distilled over would give, by a simple calculation, the amount of ferric iron that had been present in the mixture.

Hypnone or Acetophenone.

DRS. DUJARDIN-BEAUMETZ and G. BARDET have found that acetophenone is one of the most powerful hypnotics so far known. Dr. Popof, of Warsaw, had previously studied some of the physiological effects of this substance, without, however, discovering its hypnotic action, and found that it is changed, in the body, into carbonic and benzoic acids and is found in the urine in the form of hippuric acid united with bases.

The above-named authors suggest the name of *hypnone* for it, as its chemical name is too long.

The dose, for an adult, is 0.05 to 0.15 Gm. (about 1 to 3 grains), best mixed with a little glycerin and administered in gelatin capsules. It produces a profound sleep, and, in alcoholic cases, the authors deem it superior to chloral or paraldehyde.

During the 15 days that the remedy had been administered to 9 patients—previous to the publication of the report—no symptom of intolerance was noticed. The only drawback is that the breath becomes disagreeable from the fact that some of the substance is exhaled through the lungs.

On injecting the substance subcutaneously into rabbits in doses of 0.5 to 1.0 Gm. (ab. 8 to 16 grains), a remarkable hypnotic condition is induced, which passes into a comatose state and finally ends in death.

The authors state that they are engaged with a series of experiments on bodies belonging to the aromatic series, with a view of studying their physiological properties, and that they will publish the results in a short time.—*Compt. Rend.*, 1885, Nov. 9, p. 960.

NOTE.—Acetophenone or phenyl-methyl ketone, or acetyl-benzol, is formed in various ways, best by distilling a mixture of the benzoates and acetates of calcium, or by the action of zinc methyl on benzoyl chloride. It forms large crystalline laminæ, melting at 14° C. (57.2° F.), has a spec. gr. of 1.032 at 15° C., and is converted by oxydizing agents into carbonic and benzoic acids.

The Assay of Tea and Extraction of Theine (Caffeine).

PROF. HILGER recommends the following method for determining the amount of theine (or caffeine) in tea.

Ten to twenty Gm. of tea are completely extracted by boiling with three separate quantities of water. The filtered extracts are mixed with solution of subacetate of lead in slight excess, the resulting precipitate collected on a filter, and washed with boiling water, and the united liquid and washings deprived of lead by hydrosulphuric acid. The liquid separated from the precipitate is mixed with some washed sand and magnesia or lime, evaporated to dryness, and the dry residue completely extracted with chloroform, best in a Soxhlet apparatus [or other form of continuous extraction apparatus]. The residue left after the evaporation of the chloroform appears but little colored, if care has been taken in the process. This residue may be weighed after drying at 100° C. for three hours, and may be obtained completely colorless by recrystallization from alcohol or boiling water.—*Arch. Pharm.*, 1885, 23, 827.

Theine vs. Caffeine.

DR. THOMAS J. MAYS, of Philadelphia, recently published a paper in the *Medical News* (1885, 652), which is calculated to raise some doubts, particularly among physicians, as to the supposed identity of theine and caffeine.

Dr. Mays himself introduced his paper by the statement that theine "is generally reputed to be identical with caffeine, both in chemical composition and in physiological action." He also thinks that he has, by a series of experiments (*Therap. Gaz.*, Sept., 1885), produced sufficient proof to show that theine "differs very markedly in its physiological action from that of caffeine; and he believes to have, since then, gathered evidence to indicate that it differs as widely from the clinical action of caffeine as it does from its physiological action. In fact, caffeine principally affects the motor nerves, while theine chiefly affects the sensory nerves, and clinically proves itself a most valuable analgesic, surpassing morphia in promptness and permanency in relieving pain in some affections, without producing any, or at least very little disturbance of the general nervous system."

Dr. Mays tried subcutaneous injections of theine, and found it to powerfully affect the sensory nerves, acting as an anæsthetic in that portion of an injected limb which is confined below the seat of the injection. "Accordingly, its influence extends from the centre to the periphery, and not in the opposite direction."

Now this difference in action between caffeine and theine, as observed by Dr. Mays, is antagonistic to the assumption that caffeine and theine are absoluely identical. It will be of interest now to ascertain the following points, the study of which we recommend to some of our readers:

1. Were Dr. Mays' experiments made with authentic theine extracted from tea-leaves?

2. Was this theine free from any other principle or contamination?

3. Do all manufacturers of such chemicals make their caffeine solely from coffee, and their theine solely from tea-leaves; or are there any—which is not at all improbable—who, relying on the statement of their being identical, merely put up the same product under different labels to satisfy customers who insist upon having the one or the other exclusively?

4. If the theine employed was genuine, and if it is identical with caffeine, is there some principle accompanying the theine which may be extracted along with it, and modify its action?

Safrol and Oil of Sassafras.

MESSRS. SCHIMMEL & Co., of Leipzig, announce that, during the last few years, it has become a matter of great difficulty to obtain oil of sassafras of uniform quality, or even pure oil; in fact, they state that they have often been compelled to reject adulterated oil of sassafras coming direct from the place of production. After many endeavors to overcome this evil, they have concluded to put upon the market the pure stearoptene of oil of sassafras, known as *safrol*. The physical properties of this are so pronounced that any inferiority or adulteration can be detected by mere comparison. Safrol is the real aromatic principle of the oil. The commercial oil always has more or less color, and its spec. grav. varies from 1.020 to 1.080, the lower figure indicating possible adulterations with cheaper oils, such as turpentine, Japanese camphor, etc. Schimmel & Co.'s pure safrol is water-white, boils at 232° C. (449.6° F.), and congeals at a moderately cool temperature; its spec. grav. is 1.108.

NOTE BY ED. AM. DRUGG.—The circular omits to state at what temperature the spec. grav. of safrol is 1.108. We presume it is meant to be at the ordinary temperature, say about 65° F. We have no specimen of the article at hand, hence we cannot verify our guess.

According to Procter, oil of sassafras has a spec. gr. of 1.087 to 1.094. On rectifying it, a small quantity of a hydrocarbon, *safren*, passes over at 156° C. (312.8° F.). The remainder, when cooled, separates large, hard columnar crystals of safrol, and the dark-colored mother-liquid, when further cooled, will separate another lot of crystals. Safrol ($C_{10}H_{10}O_2$) melts at 8.5°C. (47°–48°F.), forming a liquid having the spec. gr. 1.114 at 0° C. (32° F.), which is capable of retaining its fluid condition even far below this temperature. Rapid crystallization is induced by the introduction of a crystal of safrol.

Sublimate Dressings.

DR. GEISSLER draws attention to the fact that fabrics (gauze, etc.) impregnated with sublimate should not be kept long, on account of the volatility of the sublimate and its readiness to decompose. In two samples of 0.5% sublimated wood-wool, only 0.315% was found, and in a 0.5% sublimated gauze, only 0.33% of sublimate and 0.05% of calomel.

The sublimate is easily extracted by ether or alcohol, and therefore easily determined. More difficult is the determination of the calomel. To do this, the fabrics must first be deprived of sublimate, then treated with hydrochloric acid and chlorate of potassium. The mercury may then be precipitated, in the resulting solution, by hydrosulphuric acid.—*Pharm. Centralh.*

Characteristic Color Reaction of Physostigmine.

THE Pharmacopœia Committee of the German Pharmaceutical Association proposes to enlarge the description of salicylate of physostigmine by adding the following characteristic color test:

"The smallest fragment of the salt dissolves in warm water of ammonia to a yellowish-red liquid which, when evaporated on a water-bath, leaves a blue or brownish-green residue, soluble in alcohol with a blue color. This solution, when supersaturated with acetic acid, turns red and fluorescent. The above residue, when dissolved in a drop of sulphuric acid, colors the latter green; on diluting with alcohol, the color changes to red, and returns to green when the alcohol evaporates."—*Pharm. Centralbl.*

Bibromide of Mercury.

(*Mercuric Bromide.*)

EUGEN DIETRICH gives, in the *Pharm. Centralhal.*, No 46, the following directions for preparing this salt:

Mercury .....100 parts.
Bromine..... 85 "
Distilled water..... ....q. s.

Into a glass-stoppered bottle introduce the mercury, bromine, and 200 parts of the water, and shake until the metal has become changed into a whitish powder. Transfer the contents to a flask, rinse the bottle with 800 parts of the water, boil four or five minutes, then, if there should be anything undissolved, allow to settle, and filter through glass-wool. Treat the residue that may have remained in the flask with 500 parts of water and filter. Evaporate the united filtrates at 40° C. (104° F.), until a pellicle forms on the surface, then set aside to crystallize. Concentrate the mother liquors, and continue the process as long as crystals can be obtained.

Dry the crystals *in a dark place* at a temperature not exceeding 25° C. (77° F.), and preserve them in bottles of brown or black glass.

The excess of bromine is necessary, because some of the latter is soluble in water, and the solution of bromine thus produced is too dilute to act on the mercury. For this reason, also, only a small quantity of water must be employed at first, and more should not be added until the bromine has combined with the mercury.

Beside the bibromide, a small amount of mercurous bromide (protobromide of mercury) is formed, a little of the metal also remains unattacked. The two substances form the insoluble residue.

The yield is about 150 parts.

The salt may also be prepared by decomposing mercuric nitrate with bromide of potassium, but the above-given method is preferable, because more simple.

Protobromide of Mercury.

(*Mercurous Bromide.*)

Mercurous nitrate.....100 parts.
Nitric acid..... 15 "
Bromide of potassium... 43 "
Distilled water .....q. s.

Triturate the mercurous nitrate in a a mortar or capsule with the nitric acid, gradually add 500 parts of the water, and effect solution, if necessary, by gently warming. Also prepare a solution of the bromide of potassium in 500 parts of the water. Pour both solutions, together, in a thin stream, and under agitation, into a capacious vessel containing 100 parts of the water. Allow the precipitate to subside, draw off the supernatant liquid with a siphon, then wash by decantation until blue litmus paper ceases to be turned red. Collect the precipitate upon a filter, and dry *in a dark place*, at a temperature of 30° to 35° (86°-95° F.). [The whole process should be carried out with artificial light.]

The yield is about 95 parts.

The product should be preserved in bottles of brown or black glass.—EUGEN DIETRICH in *Pharm. Centralhalle*, No. 46.

Lantanine, a New Alkaloid.

DR. BUISA, of Lima, had been using as an antipyretic a tincture of *Sagrada*, family *Verbenaceæ*, species *Lantana Brasiliensis*. Efforts made, at his instance, by Dr. Negrata to cover the extreme bitterness of the drug led to the finding of its active principle, which is announced in *El Cambo Farmaceutico* as the new alkaloid, lantanine. It is said to moderate the circulation, retard nutritive changes, and lower the temperature. Fifteen to twenty grains per day, in pills of one and one-half grain each, have been used to reduce temperature, and thirty-grain doses are said to conquer intermittents that prove rebellious to quinine. It seems not to disturb even the most sensitive stomach.—After *Therapeutic Gazette.*

Bismuth Subnitrate for Epididymitis.

DR. J. A. COMINGOR in a letter to the *Medical Record*, referring to a similar report regarding fuller's-earth, states that under the outward application of subnitrate of bismuth, the pain of acute epididymitis is speedily relieved, and tenderness and swelling subside in a short time. He directs it to be used as follows, to wit: Bismuth in indefinite quantity, water sufficient to make a paste about the consistence of thick cream, and with a large camel's-hair brush paint the scrotum two or three coatings, and repaint at intervals several times daily. To make the directions more definite, take bismuth and water in equal parts, mix, and apply as above. For the purpose of taking the weight off the cord and blood-vessels, I order some sort of scrotal suspension. If the ailment is severe enough to bed the patient, a broad strip of adhesive plaster or bandage fastened across or around the thighs, with sufficient padding under the scrotum and contents to elevate above the level of the body, to favor the return of blood, will be found serviceable.—*Therapeutic Gazette.*

Determination of Glucose and of Milk-Sugar in Mixtures.

THE derermination of milk-sugar alone, as pointed out by Muter and Soxhlet, varies greatly in the results obtained by different experimenters, unless an invariable method with tedious precautions is followed. But when there is a mixture of milk-sugar with cane-sugar, the difficulties are such that usually only the milk-sugar is estimated, and the cane-sugar taken by difference.

Messrs. A. W. Stokes and R. Bodmer have introduced a volumetric method whereby such mixtures can be rapidly and accurately determined (*Analyst*, April, 1885). This method is especially ussful in the estimation of cane-sugar added to milk, *e. g.*, condensed milk. They employ Pavy's ammoniated Fehling's solution, prepared thus:

Cupric Sulphate Crystallized.. 34.65 Gm.
Rochelle Salt.....170. "
Potash ....170. "
Made up to a liter.

Of this 120 Cc. are added to 400 Cc. of ammonia (sp. gr. 0.880), and made up to a liter.

10 Cc. of this solution = 0.005 Gm. of glucose.

The milk, or other solution, largely diluted, is placed in a burette, to the point of which hangs, by a small piece of india-rubber tube, a flask of about 100 Cc. capacity. The india-rubber tube is compressed by a screw clip. A side tube allows the escape of the ammonia gas evolved. Into the flask 40 Cc. of the standard solution are placed, this is boiled, and the sugar solution run in till the blue color disappears. It being exceedingly easy to run in too much, 0.2 Cc. less than the quantity found is placed in another flask with 40 Cc. of the blue fluid, and the whole boiled. If the blue color does not go, the former titration was correct within 0.1 Cc. Another portion of the same diluted milk is boiled for ten minutes with two per cent of citric acid. This inverts completely the cane sugar, but does not touch the milk-sugar, even if the boiling be continued for thirty minutes. The liquid is cooled, neutralized with ammonia, and titrated as in the first instance.

Two readings of the burette are thus obtained: the first due to the action of the milk-sugar, the second due to the combined action of milk-sugar and glucose.

The authors found that milk-sugar has 52 per cent of the reducing power of glucose on this blue liquid.

So that by a short calculation, or by reference to a table given in the paper, the proportions of milk-sugar and cane-sugar present are easily found. Examples are given, showing the methods of calculation and the results obtained. The milk or sugar solution should be diluted, so that from 6 to 12 Cc. are needed to decolorize 40 Cc. of the blue liquid. The advantages claimed for the process are the rapidity, ease of working, and accuracy of results that can be obtained by any ordinary operators.

The fluid used will keep of standard strength indefinitely, the end point of the reaction is sharply marked, not being obscured by the usual dirty-red precipitate; it is essential that it should remain clear the whole of the time.—*Chem. News.*

Non-Acid Shoe-Blacking. — Mix thoroughly ¾ pound lamp-black and ½ pound bone-black with 5 pounds glycerin and 5 pounds syrup. Heat moderately 3 ounces of gutta-percha, in an iron or copper vessel, until it is quite fluid. To this add 11 ounces olive oil, and after solution is complete a little over 1 ounce of stearin. This solution, while still warm, is added to the first mixture, after which 5½ ounces gum senegal and 1½ pounds of water are added. The whole is perfumed with about half an ounce oil of rosemary, or oil of lavender. For use this blacking is mixed with ¾ part water. It is said to give a nice polish.

Herr Artus recommends the following formula as less destructive to leather than most blacking in use: Mix thoroughly 3½ pounds vegetable-black, 1½ pounds ivory-black, 5 pounds each of molasses and glycerin; cut 6 ounces of gutta-percha into small pieces, melt, and when fluid add 20 ounces olive oil and afterward 2 ounces of stearin; stir, while hot, the second mixture into the first, and then a further addition of 10 ounces gum senegal dissolved in 3 quarts of water is made. This may be kept as stock, and for use diluted with about three times its bulk of warm water.

For liquid blacking without sulphuric acid, mix 1 pound finely powdered ivory-black, ¾ pound molasses, 2 ounces sweet oil, and 1 pint each of beer and vinegar; mix the first three ingredients very thoroughly together before adding the last two. A better liquid blacking may probably be made by the following formula: Mix 1 pound each of ivory-black and molasses, and ¼ pound sweet-oil, and gradually add ¼ pound sulphuric acid diluted with three times its weight of water; mix well, and set aside for three hours. Reduce to proper consistency with water.

For Poison Oak Eruption.

DR. W. H. TATE, in *Peoria Med. Monthly*, for the skin trouble so frequently caused by Rhus toxicodendron, recommends highly:

℞ Cupri sulphat..... ʒ ij.
Aquæ ... .O.ss.
Solve.

Sig. Apply to the surface with sponge or soft linen three times a day. —*Med. and Surg. Reporter.*

Hertzog's Swiss Pills.—During the trial of certain French dealers who had counterfeited various mineral waters and the above-named pills, it leaked out that these pills are simply the compound colocynth pill of the French codex.

Acetate of Aluminium.

DR. ROSE, of New York, gave an interesting résumé of the chemistry and therapeutic uses of this salt. The normal acetate, which would be

$$\left.\begin{matrix}Al_2\\6(C_2H_3O)\end{matrix}\right\}O_3,$$

does not seem to exist. A concentrated solution of sulphate of aluminium, filtered with excess of acetate of lead, and then freed from lead and sulphur, gives by evaporation, without elevating the temperature, an insoluble acetate of aluminium,

$$\left.\begin{matrix}Al_2\\4(C_2H_3O)\end{matrix}\right\}O_3,$$

in the form of plate-like scales. From the warm solution there is thrown down a powder, which consists of two mol. of water and

$$\left.\begin{matrix}Al_2\\4(C_2H_3O)\end{matrix}\right\}O_3.$$

and which, digested with 2 mol. of acetate of aluminium and 200 parts of water, gives a soluble salt, free acetic acid, and the hydrate of alumina. A solution of acetate of aluminium, evapated rapidly at a low temperature, seporarates into the acetate of aluminium, 2 mol. of acetic acid, and 4 mol. of water. The former, again digested, throws down the hydrate, and has now lost its mordant properties, and can no longer be used in the arts. The hydrate of alumina, dried at a temperature of 100°, and containing 2 mol. of water, is soluble in acetic acid, insoluble in strong acids.

A solution of the acetate warmed with the sulphate of potassium at a temperature of only 30° throws down a gelatinous precipitate,

$$\left.\begin{matrix}Al_2\\3(SO_3)\end{matrix}\right\}O_3 + 10\ Aq.,$$

which is soluble in cold acetic acid. When dried it is hard, semi-transparent, and easily pulverized. A solution of the acetate and chloride of sodium mixed gives a fine precipitate, composed as follows:

	Per cent.
Al_2O_3	44.56
$C_2H_4O_2$	21.96
HCl	5.51
H_2O	25.90
NaCl	1.97

Dr. Burow's method of preparing the salt is given, as follows: First, dissolve 10 parts of sulphate of aluminium in the least possible quantity of hot water, then 17 parts of crystallized acetate of lead in the same manner, and mix the two solutions while hot; stir well, set aside for a while, and then filter, washing the precipitate, consisting of sulphate of lead, with a little warm water. The clear fluid is now saturated with sulphuretted hydrogen until the odor of the latter is clearly perceptible; then separate with the filter the resulting sulphide of lead, warm until the sulphuretted hydrogen has disappeared, filter again, and dilute the filtrate with sufficient water to make the whole measure 48 parts. We have then in an ounce of the solution a drachm of dehydrated acetate of aluminium.

This solution is a clear fluid of a specific gravity of 1.0392, of a sharp, sweetish, astringent taste, and with a distinct odor of acetic acid. Evaporated in the open air, it deposits upon glass or porcelain light, fragile, glassy scales, which are perfectly soluble in water, and not readily affected by the atmosphere. In external application it is of less importance to have a chemically pure preparation of the salt than one of definite constitution, and whose degree of concentration can be regulated at will. Since the presence of the potassium salt is immaterial, solutions of the acetate of aluminium for external use may be prepared from common alum and acetate of lead, 1.6 parts of the latter reducing 1 part of the former; 55 of alum and 31 of acetate of lead are dissolved in cold water, and this process gives an almost complete decomposition of the sulphate of aluminium in a nearly concentrated solution. Burow first employed the acetate of aluminium in cases in which he wished to destroy disagreeable odors—cases of extensive sloughing and suppuration. Then, after witnessing its beneficial effects on the process of granulation in ulcers of the leg, he tried it for a long time in all cases of the latter character, for the purpose of determining in which it was most useful, and in which it might be contra-indicated. As to the different forms of ulcers in general, he found that it is particularly the sloughing condition which by a methodical application undergoes the most pronounced change in the shortest time; in such cases the entire suppurating surface must be at first constantly under power to attract and destroy the odors which are developed during this process, and the really miraculous manner in which it regulates perverse secretions in the living organism, are peculiarities which are found in no other drug, and for which in the present state of our knowledge we are at a loss to account.

When Burow made his report to the Medical Society of Königsberg he exhibited two cadavers (children), into which he had injected a concentrated solution of acetate of aluminium six weeks before; they showed no evidences of putrefaction, and he recommends this mode of embalming.

It was not until the year 1874, when the germ theory was established, that Burow found the explanation which he had so long been seeking; and it was Dr. Beneke, of Königsberg, who demonstrated to him the relation of the acetate of aluminium to bacteria and vibriones, and thereby the significance of the remedy as an antiseptic.

Beneke showed that when a drop of the alumina solution was brought in contact with the above organisms, which under the microscope were seen to be in lively action, they were destroyed immediately, with the quickness of lightning. Dr. Rose has successfully used the acetate in cases of gangrenous and complicated wounds, and he recommends it as an antiseptic much preferable to carbolic acid for post-partum injections. For external use a three-per-cent solution is the strongest which is required, as given by the following formula of V. Bruns, of Tübingen:

℞ Aluminis	72 part.
Plumbi Acet.	115 "
Aquæ	1,000 "
M. et filtra.	

For irrigation purposes, this three-per-cent solution may be diluted by from three to six volumes of water, giving a 1-per-cent to a 0.5 solution. The properly prepared acetate is high-priced, and it is hoped that some of our chemists may find a cheaper mode for its manufacture.—*Therapeutic Gazette.*

Paraffined Rubber.

To prevent rubber articles from becoming brittle and hard, and render them at the same time more durable and air-tight, it is recommended by Kreusler and Budde to immerse the articles in a paraffin-bath heated to 100° C. (212° F.) for a short time; small articles for a few seconds, and larger ones for a few minutes. They should afterwards be placed into a room where the temperature is about 100° C., whereby the paraffin is made to penetrate the rubber uniformly. After a few hours a sufficient quantity of the paraffin, from 2 to 8 per cent, has been absorbed.

To merely preserve rubber articles while in stock for sale, it is sufficient to dip them momentarily in melted paraffin. This coating may be subsequently removed by thoroughly rubbing the articles previously warmed.—*Neueste Erfind. und Erfahr.*

A Simple Desiccator.

MR. YVON describes a simple form of desiccator, devised by Wiesnegg, which is particularly serviceable for drying small quantities of precipitates, and particularly those of uric acid and albumen. It is readily intelligible without illustration. It simply consists of a rectangular plate of copper, platinized or nickel-plated, about $\frac{3}{16}$ inch in thickness, with a grove along one of the sides in which the thermometer is placed, graduated from 60° to 100° C. (140° to 212° F.). The groove is filled with copper filings so that the thermometer may be in better contact with heated metal. The plate is heated like a sand-bath, or better, on a sand-bath, the heat being regulated either by adjusting the gas stop-cock or some other contrivance, and may be maintained at a uniform temperature without difficulty. The washed filter is first dried upon it and weighed; then the precipitate is transferred to it and washed and the filter, which may be still moist, laid upon the plate, when it will dry rapidly. The thoroughness with which the washing has been conducted may be recognized from the absence of any stain on the plate, when the filter is removed.—*Journ. de Pharm. et Chem.*

To Prevent Store Windows from Frosting.

EDUARD GRUBE, of Hamburg, has patented a method for preventing store windows from frosting. He directs to run a small tin or other metallic tube along the lower edge of the window, or several sections of it, and to cause a current of hot air, produced by a gas-burner or any other source of heat, to traverse the tube. The gentle radiation of heat from its surface causes an upward current of warmer air along the panes of glass and prevents the formation of frost.

How to make the best "Tea."

IN the course of a paper (published in the *Chem. News*, 1885, 229) on the chemical composition of certain varieties of tea-leaves, Mrs. Wilhelmina M. Green brings forward the results of her experiments on the conditions necessary to extract the most aroma from tea-leaves, while at the same time leaving most of the objectionable constituents behind. From these results it appears that the most wholesome and best tasting "tea" is produced by pouring boiling water on the leaves, allowing to stand during 7 or 8 minutes, and then pouring the infusion off. This contains now the aromatic oil, almost all the theine, more than one-half of the inorganic constituents, and about one-third of the astringent and bitter tannic acid. The whole of the water must be added at once. Accordingly, the usual custom of allowing the tea to "draw" is objectionable.

To Render Fabrics Impervious.

IN 8 liters of water heated to about 80°, melt 300 grammes of gelatin, and 600 grammes of castor-oil soap, then add 300 grammes of gum-lac, stirring the liquid until entirely dissolved.

Withdraw from the fire, and add to the mixture, little by little, 600 grammes of powdered alum, stirring all the while. The liquid thickens in forming an insoluble alum soap which is intimately incorporated with the gelatin and the gum-lac. Spread it over the stuffs with a bristle-brush.

Estimation of Water in Viscid Substances, such as Honey, Glucose, Extract of Beef, etc.

THE methods generally employed for the estimation of water in viscous liquids are so well known that it will not be necessary to describe them. Evaporation in flat dishes, with or without stirring and drying with gypsum or sand, are the processes most frequently employed.

Any one who has practised these methods need not be told how troublesome and unsatisfactory the results are. Variations in the percentages of moisture obtained are always expected and are frequently of considerable magnitude.

In the following experiments we have tried to develop a method which will give concordant and therefore comparable results.

The success of the experiment was largely due to the new system of evaporation afforded by the steam drying oven described below.

This box contained three horizontal layers 1½ inch copper tubing, placed at a vertical distance of 20 Cm. between them. This system of steam pipes was inclosed in a box made of soapstone. Any non-conducting material may be used for this box. Each layer of pipes is connected with the steam service and with a trap. By this arrangement all or any one of the sets of tubes can be furnished with steam. The steam is admitted by an automatic valve by which the pressure of the steam in the tubes of the box is constant, no matter what the pressure in the boiler may be.

The top of the box is arranged like the roof of a house, and carries a ventilating flue with a damper.

The box rests on leaden supports in a lead box, over the bottom of which is placed a layer of pumice-stone saturated with sulphuric acid. All the air which enters the box must pass over this desiccating material. It therefore reaches the substances to be dried in the most favorable conditions. Each layer of tubes is provided with a thermometer. The trap is set so that no water will accumulate in the pipes, and at the same time as little steam escape as possible.

Experience has shown that with 20 lbs. pressure of steam the middle system of tubes will give a constant temperature of 100°. The bottom and top floor are a little cooler.

With 40 lbs. pressure, the central floor will show a temperature of 107° when the damper is closed. The dishes containg the substances to be dried are carried in trays made of wire gauze. A box of the size described will hold more than a hundred three-inch dishes.

Outlines of Method.—About 2 Gm. of the substance are taken and dissolved in alcohol. The alcohol should be about 80 per cent strength, so that about 5 C.c. of it will dissolve the samples taken. If the sample contains much dextrin, a weaker alcohol may be used. The platinum dish and short glass stirring rod are weighed together. Fine sifted sand, previously gently ignited, washed with distilled water and dried at 100°, is now poured into the dish from a weighing tube. About 15 Gm. are enough. The alcoholic solution of the sample is at once taken up by capillary attraction. The sample is then dried in the oven for half an hour to one hour. It is then removed, and when cooled to about 70°, 5 C.c. absolute alcohol are added, and thoroughly mixed with the contents of the dish by the stirring rod.

The sample is allowed to stand for a few minutes until the absolute alcohol has had opportunity to penetrate to all parts of the saccharated sand. The dish is then warmed at 70° to 75° for a few moments, until nearly all the alcohol is driven off. It is then placed in the oven and dried to constant weight.

[In the title we have added the words "extract of beef," since we have used a method closely resembling the above for a long time for this purpose with great advantage.—ED. AM. DR.]

—H. W. WILEY and F. V. BROADBENT in *Chem. News.*

Prices of Metals.

THE *Metallarbeiter* remarks that metals have in most cases experienced a reduction in value of late years, this depreciation being attributed in some measure to the cheaper methods of obtaining metals, as well as to the discovery of new sources of mineral wealth.

The following comparative table shows the approximate prices of various metals in December, 1874, and December, 1884:

	Dec., 1874. per lb. £	s	d	Dec., 1884. per lb. £	s	d
Osmium	71	10	0	62	0	0
Iridium	70	0	0	45	0	0
Gold	62	15	0	63	0	0
Platinum	25	7	6	21	7	6
Thallium	23	17	6	4	15	0
Magnesium	10	5	0	1	15	0
Potassium	5	0	0	4	0	0
Silver	3	17	6*	3	7	6
Aluminum	1	16	0	1	16	0
Cobalt	1	14	0	1	2	0
Sodium	0	14	2	0	8	8
Nickel	0	11	0	0	3	1
Bismuth	0	8	1	0	8	1
Cadmium	0	7	1	0	4	0
Quicksilver	0	2	0†	0	1	9
Tin	0	1	1‡	0	0	9
Copper	0	0	10‡	0	0	7
Arsenic	0	0	8	0	0	4½
Antimony	0	0	6½‡	0	0	5
Lead	0	0	2¾‡	0	0	1⅝
Zinc	0	0	2½‡	0	0	1¾
Steel	0	0	1⅜§	0	0	0¾
Bar Iron	0	0	1⅛§	0	0	0⅝
Pig Iron	0	0	0 7/16§	0	0	0¼

* In Hamburg. † In London. ‡ In Berlin. § In Upper Silesia.

Gold now ranks highest in value of all metals, the competition of osmium and iridium having been overcome. It is only by reason of improved methods of preparation that the latter have become cheaper, while their use has at the same time increased. Iridium is mixed with platinum in order to increase its strength and durability. The normal standards of the metrical system are made of platinum-iridium on account of its known immutability. January, 1882, platinum stood 15 per cent below its present value; but its increased employment for industrial purposes led to the subsequent improvement in price. Thallium has experienced a severe depreciation on account of the economical process by which it is extracted from the residue of the lead chambers used in the manufacture of sulphuric acid. The use of this metal is mainly confined to experimental purposes. The fall in silver has arisen from increased production and diminished use for coinage.

Magnesium was scarcely of any industrial value prior to the fall in price now recorded. Improved processes for its treatment have successfully engaged the attention of scientific men, and it is now capable of being used as an alloy with other metals. The Salindres factory regulates the price to a certain extent, and its system of working is regarded as a guide in the various processes connected with this branch of industry. The manufacture of potassium and sodium will, it is expected, be more fully elucidated than hitherto, by means of researches made at Schering's Charlottenburg factory. The course of nickel prices illustrates the stimulus to economical production afforded by an increased consumption. This latter fact is principally due to the employment of nickel for coinage, as alloy for alfenide, etc. The use of cadmium is materially restricted by its relatively limited supply. Hitherto, its only source was in the incidental products of zinc distillation, but of late date it has been attempted to bring it into solution from its oxide combinations. An increased employment of cadmium for industrial purposes is expected to follow.

Production in excess of the demand has caused the depreciation recorded in tin and various other metals not commented upon, this remark applying even to the scarce metals, arsenic and antimony. Even the better marks of Cornwall tin and Mansfield refined copper have had to follow the downward course of the market.

Mrs. Allen's Hair Restorer.—Wittstein and Masset have separately analyzed "Mrs. Allen's world-renowned hair restorer," and find it to consist of flowers of sulphur, acetate of lead, glycerin, and water, with a little cinnamon, to give the mixture a pleasant odor. The two analyses agree quite closely, as shown by the following comparison: Masset found in 993 parts of the "restorer," of precipitated sulphur, 17 parts; acetate of lead, 26½ parts; glycerin, 320 parts; and water, 630 parts. Wittstein, in 940 parts, found of precipitated sulphur, 16.8 parts, acetate of lead, 24 parts; glycerin, 300 parts; and aromatic water, 6 0 parts. These analyses show the dangerous nature of the mixture, containing as it does over 2½ per cent of acetate of lead.

Duration of Woods.

SOME French experiments made with little cubes of several kinds of wood, which have been sunk down into 25 millimeters of earth, show that the birch and the aspen have rotted in three years; the willow and the chestnut in four years; the maple and the beech in five years; the elm, the ash, the yoke-elm, and the Italian poplar, in seven years. The oak and several kinds of pines have rotted in seven years at a depth of 12 millimeters. At the end of seven years, the larch was still intact.—*La Nature.*

[Ure's Dictionary says: "It is found that woods of slow formation are far more durable than such as grow rapidly. The woody fibre itself is but little affected by the action of air or water, but the albumen and other bodies existing in the sap are very liable to decompose. Therefore the hartwood of trees, as being the most dense, is less liable to change or to be attacked by insects than other parts. Young, sappy wood is liable to a rapid change, and is exceedingly attractive to insects. As a rule, it appears that those woods are the most durable which have been grown under a full exposure to sunshine and with free influence of air."—ED. AMER. DRUGG.]

How to Loosen a Rusty Screw.

To loosen a rusty screw, heat the head of the screw. Get a little bar of iron red-hot in the fire, flatten its end, and apply it for two or three minutes to the head of the rusty screw. As soon as the screw is hot, it can be drawn out with a screw-driver as easily as it was put into its place.

A Coating for Iron and Steel.

ACCORDING to the *Moniteur Industriel*, to obtain a coating for iron and steel which will perfectly protect them from oxidizing, cover the articles with a hot solution of sulphur in turpentine. The sulphur, after the evaporation of the oil, remains as a thin layer on the surface. It is joined intimately to the metal under the action of an alcohol flame. It thus forms a beautiful black varnish, which is very solid.

Method of Using Gelatino-Bromide Plates in Photography, which Have been Already Exposed.

HERE is a method of using gelatino-bromide plates again after having been already exposed to light. The process was published in 1882 by *la Revue des Sciences et de l'Industrie*, and more latterly by the *Moniteur de la Photographie*.

When operating, perhaps far away from the laboratory, it is often prudent to expose several plates to the same subject in order to insure success, although the first impression might have been sufficient, the result being found perfect at the time of development.

In such a case it is not needful to develop the other plates of the same subject, and they can be kept for making new impressions.

All the exposed plates which are not developed lose the effect of the impression, and become again sensible by means of an immersion of three minutes in a bath of two per cent of bichromate of potassium. After a *good* washing, the plates are stood up nearly vertically, one side resting on blotting paper to dry them, without any light.

By this process plates which were supposed to be spoiled during the course of on excursion may be used. On returning, if the first or second proof succeed, the other exposed plates can be put aside to be treated, as we have said, and to be again used.—*La Nature.*

Iodoform Collodion.

DR. WILLIAM BROWNING, of Brooklyn, in the October number of *The American Journal of the Medical Sciences*, gives his experience with this remedy for external application. The strength usually employed is one part of iodoform to fifteeen of collodion. A half-ounce is usually sufficient for any ordinary single application. Dr. Browning has found it most effective when painted on in very thick layers, which may be conveniently done with the usual camel's hair brush. As soon as one coating becomes a little firm, another is applied, and so on until it appears to have an average thickness of half a millimeter. In the neuralgic cases a cure, when effected, was usually accomplished with one or two applications. Supraorbital neuralgias, even of malarial origin, particularly if the miasmatic infection dates back some time, seem quite amenable to this treatment. It is not recommended as a substitute for quinine here, but only as an adjuvant where the latter fails, or acts too slowly.—*Therapeutic Gazette.*

Australian Asbestos.

AN asbestos mine exists on the spur of a hill about two miles from Gurdagai, New South Wales, in which the lode has been driven for a distance of ninety feet, and a shaft one hundred feet has been also sunk. The mineral occurs in a serpentine formation similar to quartz veins, and is mined in the same manner. The material is very abundant, and is of as good quality as any in the world. The shareholders have started an asbestos manufactory, in which they propose to work up asbestos for various purposes. Among other useful purposes to which the asbestos is put is the making up of a fire-proof paint. On the same property, another class of asbestos has been discovered, and worked in connection with gold. The lode is peculiar in character, and with one or two minor exceptions is almost identical with the famous Lucknow lode, which has proved so rich in gold. In some instances, veins of calc-spar make their appearance in the lode, bringing gold with them every time. Arsenical and iron pyrites are abundant, and so far as the lode has been worked, it has proved payable by crushing tests without one failure.—*Chem. News.*

Morrhuol.

DR. JOSEPH LAFAGE announces, in the *Bull. de la Thérap.*, that he has been employing a "principle" extracted from cod-liver oil, by a process devised by Mr. Chapoteaut, with good success. The process employed is described in outline, but we cannot believe that the product is entitled to be regarded as a chemical individual, or as the "active principle" of cod-liver oil. If it is obtained in the manner described, it is hard to say what the product really is; if there is any product at all, it is most probably a complex mixture.

The process directs to treat cod-liver oil with a watery solution of carbonate of sodium "which dissolves the acids at a low temperature." Next, the oil is mixed with 90% alcohol, and shaken. The alcoholic layer is separated and distilled, when "the active principles" will be left behind.

This residue, which the author terms *morrhuol*, is described as having an acrid bitter taste, very aromatic odor, and crystallizes in part at the ordinary temperature. It is stated to contain phosphorus, iodine, and bromine in very notable proportion, "10 or 12 times greater in quantity than in the original oil. These elements are so combined that they cannot be separately determined."

Brown cod-liver oil is stated to yield 4.5 to 6% of morrhuol; yellowish oil, 2.5 to 3%; and bleached oil, 1.5 to 2%.

Morrhuol is stated to have a disagreeable taste and an aromatic odor, and is best administered in capsules containing 0.20 Gm. (about 3½ grains) of the substance, corresponding to 5 Gm. (75 grains) of cod-liver oil.

We would suggest that some of our readers examine into this subject further, and report.

CORRESPONDENCE.

Cod-Liver Oil Emulsion.

Editor American Druggist.

In answer to C. S. (No. 1,611) and Ch. and J. (No. 1,616) about cod-liver oil emulsions, allow me to present the following formulas, which I have had occasion to prepare for several firms in Montreal, and which make good emulsions if prepared rightly.

1st. *Emulsion with Hypophosphite of Lime.*

Calcium Hypophosphite	℥ ij.
Glycerin	fl. ℥ xvj.
Simple Syrup	fl. ℥ xiv.
Oil Almonds, bitter	℥ iss.
Oil Neroli	♏ xx.
Lime Water	℥ xxx.

Ten ounces of this solution to a half gallon each of lime water and oil.

2d. *With Hypophosphites of Lime, Soda, and Potassium.*

Sol. No. 1.

Powd. Tragacanth	℥ ij.
Glycerin	fl. ℥ ij.
Water	fl. ℥ vj.

Triturate the tragacanth with the glycerin, then gradually add the water.

Sol. No. 2.

Hypoph. Lime	℥ iij.
" Soda,	
" Potash	āā ℥ iss.
Water	fl. ℥ viij.
Sugar	℥ viij.

Dissolve the hypophosphites in the water, add the sugar, and dissolve by gentle heat. When dissolved gradually add to the first solution.

Sol. No. 3.

Oil Lemon	♏ xv
" Almonds, bitter	♏ x.
" Cassia	♏ v.
Alcohol	fl. ℥ iv.

Add to the former two.

Take equal parts of this mixture and of oil. Stir till it does not separate.

3d. *Pancreatized Cod-Liver Oil.*

Sol. No. 1.

Hypophosphite of Lime	℥ ij.
Glycerin	fl. ℥ xvj.
Syrup	fl. ℥ xiv.
Oil Almonds, bitter	fl. ℥ ij.
Lime Water	q.s. fl. ℥ xc.

Sol. No. 2.

Pancreatin	℥ i.
Glycerin	fl. viij.
Syrup	fl. ℥ xx.
Oil Almonds, bitter	℥ i.
Tinct. Orange	fl. ℥ iv.
Lime-Water	q.s. fl. ℥ xiv.

To each quart of lime-water and oil add 9 oz. of the first solution, and 1 oz. of the second.

The emulsifying qualities of these depend wholly upon the amount of labor spent upon them. I have found a churn a very good emulsion mixer.

E. A. RANSON.

GRAND FORKS, DAK.

Emulsion of Cod-Liver Oil.

IN answer to queries and answers in Nos. 1,612 and 1,616, I can recommend the following as giving an emulsion which is permanent and at the same time as pleasant as those containing sweets and flavors:

I. ℞ Quince Seed	℥ i.
Boric Acid	grs. iv.
Water	℥ iv.

Let stand until a mucilage is formed, or if wanted for immediate use, pour boiling water over the seed, and shake until mucilage is formed.

II. ℞ Cod-Liver Oil	℥ viij.
Pv. Gum Acacia	℥ iv.

Mix well in a suitable mortar, then add at once

Water	℥ iv.

Stir until a perfect emulsion is formed, then add the quince mucilage; for castor-oil emulsion, proceed as above, using 2 ounces of powd. gum acacia, in place of 4 ounces.

I find this emulsion is as permanent as any on the market, but has this disadvantage—if hypophosphites are added to it, it has an acrid taste. In comparing it with three popular brands, I mixed 1 part with 3 parts of water, and let stand twenty-four hours, when, upon examination, all showed decidedly greater tendency to separate than this.

"JUNIOR."

To Clean the Hands after Work in the Shop.

PETROLEUM jelly serves to clean and take away all traces of dirt from the hands after work in the shop or laboratory. For that purpose, you need only rub the hands with a small amount of the jelly, which, penetrating into the pores of the skin, incorporates itself with the greasy matters which are there. Wash then with warm water and Castile soap, and the hands become cleansed and softened.

Brown's Bronchial Troches are said to be composed of:

℞ Powd. Ext. Licorice	16 oz,
Powd. Sugar	24 "
Powd. Cubebs	4 "
Powd. Gum Arabic	4 "
Ext. Conium	1 "

Use sufficient water.—*Drug. Circ.*

To Cover the Taste of Piperin.—Sweet cream will disguise the taste of piperin, or of powdered capsicum.—*National Drug.*

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.

No. 1,645.—**Perfume for Soap** (S. H. C. B.).

Among the more pungent perfumes for soap that might be suitable for the purpose of our correspondent, we may quote the artificial oil of bitter almonds (oil of mirbane), and the new perfume "nerolin," which has an odor resembling that of orange flowers. (See AMER. DRUGG., 1885, 234.)

No. 1,646.—**Pain-Killer** (O. W.).

According to Stearns' *New Idea*, a preparation closely resembling Perry Davis' Pain-Killer may be prepared from the following ingredients, by maceration:

Myrrh	2¼ lbs.
Capsicum	10 oz.
Opium	8 "
Benzoin	6 "
Guaiac	3 "
Camphor	10 "
Alcohol	5 gall.

No. 1,647.—**Eau de Quinine** (Ch. L.).

We do not know the exact composition of the French proprietary article known under this name, but take from our files the following formula of a "Quinine Hair Tonic," which has a clear, red color:

Quinine Sulphate	60 grains.
Diluted Hydrochloric Acid	q. s.
Glycerin	4 fl. oz.
Alcohol	2 fl. oz.
Oil of Neroli	4 min.
Oil of Bergamot	4 min.
Water, enough to make	16 fl. oz.
Tincture of Cudbear	q. s.

Rub the essential oils with a little precipitated phosphate of calcium or magnesia and about 8 fl. oz. of water, and filter into a bottle containing the glycerin, alcohol, and the quinine previously dissolved in 1 fl. oz. of water with the aid of the diluted hydrochloric acid. Wash the filter with enough water to make the volume of the liquid one pint, and color with the tincture of cudbear (1 in 10, made with diluted alcohol).

No. 1,648.—**Cloth-cleaning Liquid** (O. W.).

No single liquid will, of course, answer for all purposes, as it depends upon the nature of the stain what liquid should be used to dissolve it. In a general way, we have found that a mixture of water of ammonia (or spirit of ammonia) with an equal volume of benzin, ether, or chloroform, answers most purposes.

No. 1,649.—**Coloring Elixirs** (W. McV.).

It is customary to employ as coloring matter either caramel, or cudbear, or cochineal, according to the kind of elixir and the prevailing custom.

About ten minims of caramel will be sufficient to color 1 pint of simple elixir.

Cudbear is best used in form of tincture made with diluted alcohol. It is an excellent coloring agent for acid liquids.

Cochineal coloring may be prepared by mixing

Cochineal, powd	1 part.
Alum, powd	1 "
Carbonate of Potassium	1 "
Bitartrate of Potassium	2 parts.

and keeping in well-stopped bottles.

Or, cochineal may be extracted with warm diluted alcohol.

The cochineal coloring is incompatible with acids.

No. 1,650.—**Heliotropin** (J. D. H.).

This may be obtained from the manufacturers, Messrs. Schimmel & Co., of Leipzig (New York House: Fritzsche Brothers, Barclay st.).

Heliotropin is a trade name given to it on account of its odor, which closely resembles that of the heliotrope. Chemically, it is the substance known as *piperonal* or *methene-protocatechuic aldehyde* (see *Beilstein, Handbuch d. organ. Chemie* II., 1662. *Fownes' Chemistry* [Philad. 1878], p. 891).

It is prepared from piperin (extracted from pepper) as follows. The piperin is converted into piperate of potassium by heating it for 24 hours with an equal quantity of caustic potassa and 5 parts of alcohol. It is then dissolved in 40 or 50 parts of hot water, and the hot solution slowly mixed, under constant stirring, with a solution of 2 parts (that is, twice the weight of the piperate of potassium obtained) of permanganate of potassium. The resulting magma is put on a strainer, and repeatedly washed with hot water, until it has no longer the characteristic heliotrope odor. The united liquids are now distilled, and from the first portions of the distillate, which are collected separately, the larger portion of the piperonal (or "heliotropin," $C_8H_6O_3$) separates, on cooling, in crystals. The remainder may be extracted from the distillate by shaking with ether.

Piperonal or heliotropin is soluble in about 600 parts of cold, and more soluble in hot water; easily soluble in alcohol.

No. 1,651.—**Heliotrope Sachet** (H.).

We take the following from our files:

Rose Leaves	150 grains.
Musk	2 "
Tonka Beans	75 "
Vanilla	40 "
Orris Root	300 "

Reduce the ingredients, except the musk, to a moderately coarse powder; then mix intimately with the musk.

This combination, which we have not tried ourselves, is stated to have an odor resembling heliotrope. It seems to us that the odor of the latter may probably be developed more strongly by incorporating with the mixture a small quantity of alcoholic solution of artificial heliotropin. (See answer to query 1,650.)

No. 1,652.—**Elixir of Calisaya and Protoxide of Iron** (Dr. H. W. and A. T. M.).

The following formula has been recommended for preparing this elixir. It is impossible for us to say whether the firm you mention make it exactly by this formula or not, for we never have had any occasion to handle it, as it is not in demand in our vicinity.

Elixir of Calisaya	14½ fl. oz.
Solution of Protoxide of Iron	1½ fl. oz.

Mix and filter.

Solution of Protoxide of Iron

is directed to be prepared in the following manner:

Sulphate of Iron (pure crystals)	3 troy oz.
Carbonate of Sodium	4 " "
Citric Acid	2 " "
Sugar	4 " "
Hot Water	q. s.

Dissolve the sulphate of iron and the carbonate of sodium, separately, in 1 quart of hot water, in bottles just filled with the solution. Cork them and set them aside until merely warm. Then mix them in a bottle large enough to hold the two liquids, allow the precipitate to subside, and fill the bottle with warm water, agitate and decant again. Repeat this until the decanted water is tasteless. (It is not necessary to wash the precipitate until it is chemically pure.) Transfer the precipitate to a muslin strainer, squeeze out the superfluous water and dissolve the precipitate with the aid of the citric acid in a sufficient quantity of water to make 1 pint.

Elixir of calisaya may be made after a great variety of formulas. That contained in the New York and Brooklyn Formulary will probably be found the best.

No. 1,653.—**Copying Ink** (Met.).

Any good iron-ink may be converted into a copying ink by evaporating ten volumes of it to about six, and then adding four volumes of glycerin.

The following formulæ are recommended by Fehr:

1.	Extract of Logwood	35 parts.
	Vinegar, diluted (1:1)	1,000 "
	Sulphate of Iron, cryst	20 "
	Alum	10 "
	Gum Arabic	16 "
	Sugar	32 "
	Glycerin	2 "

Heat the extract of logwood with the diluted vinegar until solution has been effected. Then allow to cool, and add the other ingredients.

2.	Galls, ground	3 lbs.
	Logwood, ground	2 "
	Sulphate of Iron, cryst	1 lb.
	Gum Arabic	¾ "
	Vinegar	1 gall.
	Water	2¾ gals.
	Sugar	q. s.
	Glycerin	q. s.

Macerate the solids with the vinegar and water for at least four weeks, stirring and agitating the same several times daily. Then draw off the ink from the insoluble matters, and add to each gallon:

Sugar	4 oz.
Glycerin	4 "

No. 1,654.—**Cod-Liver Oil Emulsion** (M. McK.).

You will find some practical remarks on this subject in our last number. In addition, we will give the formulas as recommended in the New York and Brooklyn Formulary:

Stronger Emulsion of Cod-Liver Oil.

(Modified according to Mr. Theodore Louis' suggestions. See AMER. DRUGG., 1884, 130.)

Acacia, in fine powder	2 av. oz.
Sugar, in fine powder	4 av. oz.
Cod-Liver Oil	16 fl. oz.
Water, enough to make	28 fl. oz.

Mix 2 oz. of the acacia thoroughly with 4 fl. oz. of the cod-liver oil in a dry mortar, and add 3 fl. oz. of water, with which prepare a perfect emulsion by assiduous trituration. Now add the powdered sugar, and gradually, under constant trituration, alternate portions of the remaining cod-liver oil (12 fl. oz.), and water (5 fl. oz.), in quantities of about 1 or 2 oz. at a time.

The product measures 28 fl. oz., and is to be made up, either with water or with an aqueous solution of certain salts, to 32 fl. oz., when it is prescribed or wanted for use.

Emulsion of Cod-Liver Oil.

Stronger Emulsion of Cod-Liver Oil	14 fl. oz.
Oil of Sassafras	15 min.
Oil of Wintergreen	15 "
Water enough to make	16 fl. oz.

Mix thoroughly.

No. 1,655.—**German Silver** (B. B.).

This is an alloy consisting of copper, zinc, and nickel, in various proportions. The smaller the quantity of nickel, the more yellow is the alloy. The metals are heated together, in small pieces, in a crucible, the copper being so distributed that a little of it is at the bottom as well as at the top. The whole mixture is covered with coal-dust and then exposed to the heat of a furnace, being occasionally stirred with an iron rod. The presence of 2

to 3 per cent of iron in the finished alloy renders it much whiter, but also more brittle. Its spec. gr. varies from 8.4 to 8.7, according to its composition.

No. 1,656.—Essence of Lemon (water-soluble), and Essence of Peppermint (J. P.).

The same difficulty which presents itself in the case of ginger is met with here. The problem is to get the essential oil of lemon dissolved by a menstruum which has only very feeble solvent powers for essential oils. If the resulting solution were required to flavor liquids not intended for beverages or culinary purposes, it would be possible to prepare a comparatively strong solution by means of "Polysolve" (the sulpho-ricinoleate of an alkaline base, preferably sodium; see AM. DRUGG., 1884, p. 22), in which it is quite soluble, the resulting solution being clear and capable of being diluted with water to any extent. Should the solution, previous to copious dilution, be not quite clear, it may be rendered so by addition of a few drops of ammonia.

Of course, it would not be proper to use a solution of this kind for internal use without previously establishing the fact that the sulpho-ricinoleate of sodium, in the quantity contained in the amount of essence to be used, is absolutely inert and innocuous. This proof has not yet been adduced, and, therefore, we desire it to be understood that we have pointed out the above method for making an aqueous solution of oil of lemon or any other essential oil for internal use, merely as a matter of scientific interest.

A good essence of lemon, as strong as it can be made without separating oil or producing turbidity when added to water, may be prepared as follows:

Oil of Lemon	20 min.
Alcohol	½ fl. oz.
Water	1½ fl. oz.
Phosphate of Calcium, about	60 grs.
Tincture of Curcuma	q. s.

Dissolve the oil of lemon in the alcohol, then gradually add the water, triturate or agitate the mixture thoroughly with the phosphate of calcium, and filter through a wetted filter. Color with tincture of curcuma.

Or the filtered liquid may be kept in contact with fresh lemon peel for some time to impart color to it.

This liquid will not become turbid when added to water.

Our correspondent uses carbonate of magnesium to help to divide the oil and to filter clear. This may, of course, be used, and used to be officially directed in the U. S. Ph. for such purposes, but since it is not quite insoluble, and is apt to render a solution so alkaline that alkaloidal salts may be precipitated thereby, it has been replaced by precipitated phosphate of calcium at the last revision. As long as it is used in essences which are not intended for medicinal use, no harm can result from it.

In the case of essence of peppermint, a still stronger solution may be made by using what is called in trade the quintessential oil. This is prepared from the ordinary essential oil by fractional distillation, and selecting the most highly aromatic fraction. It so happens that this is also much more soluble than the others. Such quintessential oils are only prepared from those essential oils which yield a paying proportion of the fraction desired (such as those of anise, caraway, cassia, ginger, juniper, and peppermint). The quintessential oils are, of course, very much dearer than the original oils from which they are made, that of peppermint, for instance, being about $24 a pound. Those of coriander and ginger have the same price as that of peppermint. The high price is only an apparent disadvantage, since a smaller quantity of the dearer oil will, in most cases, answer the purpose, and, as it is more soluble, none need be wasted, which is very generally the case when ordinary essential oils are taken, and the excess of the oil absorbed by magnesia or some other medium.

No. 1,657.—Specific Gravity Rules (Ed. J. and others).

Several of our younger readers, who reside in a locality where they have no opportunity of attending college, ask the following questions: "We are familiar with what the text-books teach regarding specific gravity, and understand how it is to be determined, but it is not quite clear to us in what manner the rule was arrived at, 'divide the weight in air by the loss of weight in water, the quotient will be the spec. grav.'" And further: "Why is there sometimes a difference made by writers on this subject in respect to bodies which *float* on water and in respect to those which *sink* in water, by establishing the rule: 'Bodies which float on water displace their own *weight* of the latter; bodies which sink in water displace their own *bulk*.'"

We will try to make these points clear. First, what do we understand by specific gravity? Simply, the relative weight of equal volumes of two different substances. And since it is necessary to agree upon one substance, as a uniform standard, with which all other (solid or liquid) bodies can be compared, *pure water* has been chosen as such standard, and, no matter what the actual volume of the other substance may be, the weight of this volume is always calculated or determined in figures which refer to *one part* or to *one thousand parts* of water. Supposing a certain measure full of water should hold exactly 1,000 grains of the latter, and the same measure, when afterwards filled with another liquid, should hold exactly 2,000 grains of this, then its specific gravity would be double that of water. Supposing the same measure should hold only 500 grains of another liquid, the spec. gr. of the latter would then be only one-half of that of water. The spec. gr. therefore is a figure which expresses *how much greater* or *how much smaller* is the weight of a given volume of a substance compared with the same volume of water. The arithmetical operation by which it is determined *how much greater* or *how much smaller* one value is than another, is performed by division. If we want to know how much larger 12 is than 4, we divide 12 by 4, and obtain as answer, 3. That is, 12 is 3 times as large as 4. We, therefore, have the rule: To find the spec. gr., divide the weight of a given volume of a substance (as ascertained by weighing it in air) by the weight of the same volume of water.

It is not an easy matter, or at least not always convenient to ascertain, experimentally, the exact weight of an equal volume of water. It may be accomplished approximately, provided the substance is not soluble in water, by such devices as the following:

1. Immerse the body in a measured volume of pure water (at the proper temperature) contained in an accurately graduated cylinder or burette, and observe the increase of volume. The weight of this increase, which may be easily calculated, is the figure sought.

2. Into a vessel provided with a lateral outlet, pour water until the latter begins to flow from the outlet. When all that can flow or drip out has passed, place a weighed beaker under the outlet, and cautiously and slowly immerse the solid in the water, when it will cause a volume of water equal to its own, to flow into the beaker in which it then may be weighed.

Neither of these methods, however, furnishes as accurate results as the indirect method derived from the physical law (first observed by Archimedes), viz.:

"A body immersed in a liquid loses as much weight as its own bulk of that liquid weighs."

Therefore, if we weigh the body while immersed in water, it will weigh less by precisely the weight of its own volume of water. Deducting, therefore, the weight of the body when immersed, from its weight in air, we find the weight of an equal volume of water. Or, to state it inversely, the weight of an equal volume of water is found for a solid body, by deducting its weight when immersed in water from its weight in air. Or in still other words: The weight of an equal volume of water is the same thing as the loss of weight of the substance in water. Let us now substitute this latter expression (or value) in the rule above quoted, and the rule becomes:

To find the spec. gr.,
divide the weight of a given volume of a substance (as ascertained by its weight in air) by its loss of weight in water (as ascertained by weighing it under water and deducting this weight from the former).

Regarding the second query, we would say, that the rule, as quoted, is merely one of convenience in teaching, and does not imply that there is one law for floating bodies and another for immersed bodies. Supposing we have a solid piece of glass. If we drop it into water it will sink. If we weigh it first in air, and afterwards in water, the loss of weight in water will tell us how much an equal volume of water weighed, and from this we can calculate the specific gravity of the glass. Supposing we were to remove the lump of glass, heat it until it melts, and blow it into a small hollow and closed bead or globe, without loss of any of the glass. Evidently the weight of the glass in air would remain the same [see remark further on]. But, when immersed in water, it would displace a larger volume than before. By properly adjusting the size of the globe, we might perhaps hit the exact point at which the weight of the water displaced by it exactly equals the weight of the globe in air. In this case, perfect equilibrium would be established, the globe [*not* the glass *per se*] would have the same specific gravity as the water, and it would remain at whatever level it might be placed in the water. Now, no matter how much larger the globe may subsequently be blown, it never can displace any larger volume of water than it did in the last experiment, when equilibrium was established. Therefore, if increased in size by further blowing, it will no longer stay below the surface, but it will float and only a portion will be immersed. The volume of water thus displaced—as it must always balance the weight of the globe, which remains constant—will therefore remain the same, no matter to what size the globe may be blown afterwards. [We purposely take no account here of the influence upon the results from changes of temperature, the presence or pressure of the inclosed air, and other concomitant circumstances, none of which affect the *principle* involved.]

It must be well understood that only in the first experiment, when we had a solid piece of glass, did we determine the specific gravity of the substance "glass." In all subsequent experiments we had to do with an arbitrarily-shaped glass-globe *plus* air. If we had blown the globe so that it had been provided with an orifice, and if we had filled it with water, it would of course have sunk if immersed in water, and if we had now weighed it, we would have found that its loss of weight was precisely the same as it was while still a solid lump. It is surrounded on all sides by water. When blown into a hollow, closed globe, it is only surrounded on the outside by water, air being on the inside.

These explanations being premised,

it will be seen that the rule which forms the subject of the query is merely a convenient statement of the general law of Archimedes mentioned further above. The rule may be extended thus:

1. Bodies which float at any level in water displace their own weight and their own body of water.
2. Bodies which float on the surface of water displace their own weight and less than their own volume of water.
3. Bodies which sink in water displace their own volume but less than their own weight of water.

No. 1,658.—**Keratin** (M.).

This substance, recommended by Dr. Unna as a coating for pills which are not intended to be dissolved in the stomach, is prepared from horn or other parts of animals having the same composition. Quills are best. According to the *Pharm. Centralhalle*, quills are cut in pieces, and gently boiled for twenty-four or thirty-six hours with the strongest acetic acid in a flask. [To prevent loss of acid, and its escape into the air, it will be found advantageous to use an upright condenser, thus compelling the condensed acid to flow back into the flask.]

During this time, the quills will have become dissolved to a viscid yellowish-brown liquid, a slight residue only being left behind. The liquid is filtered through glass-wool, and evaporated on a water-bath. The resulting product—keratin—is insoluble in water, hydrochloric acid, or pepsin, but is soluble in alkalies. When dissolved in a little acetic acid, with very gentle heat, it is recommended as suitable for coating such pills as are intended to remain undissolved in the stomach, but to dissolve in the alkaline contents of the intestines.

No. 1,659.—**Saccharin** (Dr. F.).

Up to within a short time ago, the name saccharin was restricted, in chemical terminology, to the anhydride of saccharic acid:

$$\underset{\text{saccharic acid}}{C_6H_{12}O_8} - \underset{\text{water}}{H_2O} = \underset{\text{saccharin}}{C_6H_{10}O_5}$$

Dr. C. Fahlberg, of New York, however, has recenty discovered a derivative of benzoic acid, namely the "anhydro-ortho-sulphamine-benzoic acid" ($C_6H_4.CO.SO_2.N.H$) which has also been named *saccharin*, probably for commercial reasons, in the same manner in which antipyrin, kairin, thallin, and similar other terms are used in place of cumbersome chemical terms. This saccharin is, therefore, no carbohydrate. It is white, crystalline, difficultly soluble in cold, more readily soluble in hot water, and has, even in very dilute solution (1 in 10,000) an intensely sweet taste and an almond-like, not disagreeable odor. Dr. A. Stutzer (whose article on this substance was published in the *Deutsch-Amer. Apotheker-Zeit.*, Oct., 1885) has made experiments with it to ascertain its influence upon the digestive process, and has found that it has either no influence at all, or at least such a feebly favorable one, that—in the dilution in which it is likely to exist (1 in 1,000) when mixed with other articles of food—it may be classed among the innocuous substances. At least it was found that doses of 0.01 to 0.1 Gm. ($\frac{1}{6}$ to $1\frac{1}{2}$ grain) given to rabbits and animals had no injurious effect. Saccharin requires for solution 500 parts of water at 15° C. (59° F.), but as it retains its intensely sweet taste even when highly diluted, a very small quantity will be found to be sufficient. It is recommended by Dr. Stutzer as a useful addition to confectionery, in the preparation of artifical liquors, and of powders, pastilles, and medicines, wherever it may be desired to impart decided sweetness to the compound.

It has also been found that saccharin greatly increases the sweetness of grape-sugar and glucose, and that it acts as a preserver for dilute solutions of sugar. It seems to us, therefore, that there is great likelihood of its being largely employed in the preparation of adulterated sugars, syrups, etc. where a too great proportion of grape-sugar and glucose has heretofore been impracticable, owing to the diminution in sweetness. The fruit-canning trade, which uses large quantities of glucose for preserving pears, peaches, etc., is also likely to avail itself of this agent.

It will, therefore, be necessary to study its chemical reactions, and to find means of detecting and separating it.

No. 1,660.—**Water in Essential Oils** (M. A. S.).

Nearly all essential oils which have been distilled in the presence of water, contain a little of the latter in solution, from traces up to perhaps 0.25 or 0.3 per cent. When the amount of water is greater than the oil can hold in solution, the latter looks turbid. An essential oil, which becomes turbid when cooled considerably below the average temperature, provided the turbidity is not due to the separation of crystals, is probably saturated with water. The presence of the latter may be demonstrated by dissolving the oil in 4 or 5 volumes of petroleum ether (sp. gr. about 0.670), when the solution will appear turbid if water was present. The water can be removed by placing pieces of fused chloride of calcium into the oil, and occasionally agitating.

No. 1,661.—**Quality of Commercial Cocaine** (Subscriber).

We have already (in our last volume, p. 197, query 1,337) stated that the quality of the American cocaine, in our experience, is equal to that of the best European makers. In a recent number of the *Pharm. Zeitung* we have met with an article, from the *Droguisten-Zeitung*, in which the cocaine in the European market is divided into two classes; one comprising those qualities which dissolve *without color* in concentrated sulphuric acid, and the other containing those which yield colored solutions. The former kind has been found in all respects to be pure, but is said to be scarce. Next to it comes that variety of cocaine which imparts to cold sulphuric acid a faintly yellow coloration. This color disappears after a short time, leaving the liquid almost or quite colorless. Both of them, when ignited upon platinum, leave no residue or at least only faint traces. All other brands of cocaine color sulphuric acid more or less intensely, and the depth of color varies—so the writer of the paper asserts—according to the source from which the alkaloid is obtained. The German cocaine, he says, usually produces a yellowish coloration with reddish tint; the darker these colors are, the less pure is the alkaloid. A similar behavior is shown by the English brands. Then he asserts that the imported American cocaine mostly produces a rose-red to carmine color; and he adds that the percentage of incombustible residue (consisting mostly of calcium sulphate) rises in proportion as the depth of color produced with sulphuric acid increases.

Unfortunately the author, when speaking of *American cocaine*, does not specify whether he means South-American cocaine or such as is produced in the United States. In many parts of Europe, and particularly in Germany, it is quite customary to use the term "America" in a restricted sense for "United States," and therefore a large proportion of the readers of that article will receive the impression that the cocaine imported from the United States is so impure. We know that large quantities of the alkaloid manufactured in New York and other parts of the United States have been sold in the past to European dealers. Now we have taken some pains to examine several lots of cocaine in our possession, one from the largest American manufacturers (New York) and the others from other sources. We find that the alkaloid imparts to colorless concentrated acid at most only a faintly yellow color, never even approaching to a red tint. So far we have seen no sample which would leave sulphuric acid absolutely colorless.

No. 1,662.—**Agaricin** (B. B. T.)

Agaricin is not an alkaloid. It is an indifferent principle, is *almost insoluble* in water, altogether so in ether, but rather easily soluble in alcohol. It may be obtained from the fly-mushroom, *Agaricus albus*. Whether any other species of agaricus are used in its preparation is uncertain. What the true chemical nature of composition of the so-called agaricin is, appears to be as yet in doubt. It is not identical with muscarine, a powerful cardiac poison.

Recent clinical experience has confirmed the previous report that this body is an efficient anti-hydrotic. It has been used with uniform success against the night-sweat of phthisis, and, in fact, as a means of suppressing the characteristic perspiration following the administration of various medicines, such as antipyrin, for instance.

At Bellevue Hospital, and other public institutions of New York City, it is regularly employed for this purpose. Since it is almost insoluble in water, it cannot be administered in watery solution together with antipyrin. It is either given in form of powder, or in solution of alcohol and glycerin. The following is a usual proportion:

℞ Agaricini.....gr. 1
Alcohol.....♏ 50
Glycerin.....♏ 50

Dissolve. 10 minims contain $\frac{1}{10}$ grain of agaricin which is an average dose. This may be administered hypodermically; but it is, perhaps, better to administer it by the mouth. Agaricin does not usually act in phthisical night-sweats before five or six hours have elapsed. Therefore, it ought to be given a sufficient time beforehand. In the case of antipyrin, however, it seems to act promptly, if given at the same time.

No. 1,663.—**Dimethylacetal as an Anæsthetic** (Ch. H.).

We do not think that there is any "dimethylacetal" for sale in this country at present. It is quoted in the price-lists of certain chemical manufacturers of Germany (*i. e.*, C. A. F. Kahlbaum, of Berlin), at 8 marks per 100 Gm., which would bring it, with duty and other expenses, to about $1.10 per ounce here.

As to its anæsthetic value, we only know that it has been very thoroughly tried by Dr. Fischer, of Strassburg, who gave it, however, always in mixture with chloroform. It has been used in this way, as an anæsthetic, in 150 surgical operations.

Dimethylacetal, or ethidene dimethylate (*German:* dimethylacetal, or æthilidendimethyläther) is a colorless, ethereal liquid, having a fruity odor, boiling at 64° C. (147.2° F.), and having the sp. gr. 0.859 at 140° C. (57.2° F.). It is a natural constituent of crude wood-spirit (5 to 10 Gm. per liter). It is formed when a mixture of methylic and ethylic alcohols are oxidized by means of dioxide of manganese and sulphuric acid. It is prepared most economically by heating a mixture of 1 vol. aldehyde, 2 vol. of wood-spirit, and $\frac{1}{4}$ vol. of glacial acetic acid, to 100° C. (212° F.).

No. 1,664.—**Blue Mass** (J. G. H.).

"In your March No., 1885, you described mercurial ointment, blue mass and hydg. cum creta machines. I

tried the latter apparatus, and find it to work very well. Now I want to try the blue mass machine, but don't understand the formulæ for it. It says:

Mercury.....2½ lb.
Glycerin.... ... 2 lb. and 5½ oz.
Water,
Alc.....āā 9½ fl. oz.
Powd. Licorice Rt. 3 oz., etc.

It reads on until it says: 'and the honey added with energetic motion.' How much honey must be used? Again it reads: 'And the proper amount of rose leaves, marsh mallow, and licorice root, etc.' How much of these must be used?"

[This is another instance of a fragmentary address, which prevents a reply being furnished by mail. As the essential feature of the paper referred to was the description of an apparatus and the mode of using it, the formula for the compound may be varied, and we would advise the use of the one which is now officinal, for which see the U. S. Pharmacopœia of 1880, or subsequent editions of the several dispensatories.—ED. A. D.]

No. 1,665.—**Gelatin-coating Pills** (J. H. S.).

Machines for gelatin-coating pills are made and sold by various parties. That which is perhaps the most simple, for use on the prescription counter, is Prof. Patch's apparatus, a full description of which was published in this JOURNAL, 1884, page 123.

Other machines are those of Chas. B. Allaire, Maynard, Franciscus, Neynaber, etc., regarding which you will probably obtain the necessary information by applying to some wholesale drug sundries' house, and by reference to our advertising pages.

No. 1,666.—**Terpin** (E.).

Regarding this substance, we refer you, in the first place, to our last number, page 15, where the results of Lepine's investigations are quoted from the *Revue de Médecine* (and *Ther. Gaz.*). As to the period of its first introduction into medical or surgical practice, there is some difficulty in deciding what the various authors understood by the terms "terebene," "turpene," "turpin," "terpin," etc. J. Ribau, whose article in the *J. de Pharm. de Chim.* you refer to (but which we fail to find quoted in the Dispensatory you mention), speaks of terebenthene and terebene, the existence of the latter of which is denied by Tilden. Bond (*Lancet*, Sept. 16th, 1876) and Waddy (*Brit. Med. Journ.*, June 1st, 1877) recommend "terebene" as an excellent dressing of indolent ulcers and for an antiseptic dressings. Whether they mean the hydrate of oil of turpentine known as terpin, or the polymerized derivative of oil of turpentine, we cannot at present decide. Lepine's article, which is also to be found in the *Medical Times*, 1884, p. 768, at all events leaves no doubt but that "terpin" here means the hydrate.

No. 1,667.—**Gelatin Bougies** (Junior).

This corresponent says that he tried the process of making gelatin bougies recommended on page 158 of our last volume, but that he found it impossible to dislodge the bougies, and what he did succeed in getting out was not like a bougie at all.

Our impression is that our correspondent did not avail himself of the peculiar elastic properties of the gelatin. It is true that in our previous notice it was recommended to push the bougie through by a rod. This will succeed in case the bougie is very stiff and hard, and the interior of the tube is well oiled. With narrow tubes, however, and a softer mass, it is very difficult to do this. In such a case it is better to proceed as follows:

Select a glass-tube of such a length that, when filled with the mass, about one inch at either end may be wasted, without making the bougie useless. The shorter a tube can be used the better. For a bore of ¼ inch it should not be over 8 inches in length. Oil the interior of the tube, after being cleaned, and dried thoroughly, best by pouring oil into it. Let this drain out, and immediately fill it with the melted mass by suction, using a bit of rubber tubing and a pinch-cock to prevent it from flowing back. Then put the tube in a cold place. When it is set, crush about one inch of the glass-tubing on one end, so as to strip a short piece of the bougie, and, having fastened the glass-tube in some manner, exert a gentle but uninterrupted traction. This will render the elastic mass thinner, so far as it is free from the glass, and it will gradually peel off all the way up to the other end, or nearly so. When it is found that traction no longer loosens any portion of it, the glass-tube may be cut just this side of this place. We presume that bougies, on a large scale, had best be made in metallic forms, but for making a few bougies sporadically, some process like the above is all sufficient. Sometimes it will be found of advantage to pass a strong thread through the tube before filling it, so that when the bougie is set the string may occupy the centre of the mass. It will then be comparatively easy to remove it.

Formulæ Asked for.

1. Dr. Fowle's Pile and Humor Cure.
2. Blair's Pills (for Rheumatism).
3. Flagg's Instant Relief.
4. Vegetine.
5. Thompson's Eye-Water.
6. Brown's Bronchial Troches.
7. Magic Oil.
8. Thomas' Electric Oil.
9. Barrett's St. Vitus Dance Remedy. [We have never tested this, but would suggest that it be examined by our corrrespondent, for arsenic.]

About Ants.

WHEN the season comes for the ants to appear and invade kitchens, dining-rooms, bed-rooms, bird-cages, chicken-coops, nests, etc., etc., a few drops of carbolic acid dropped on their runs will promptly drive them back. To prevent them from climbing the fruit trees, I have successfully employed a woollen thread slightly oiled in a ring around the trees. Carbolic acid, in dwellings, gives forth an insupportable odor for certain persons. In such cases, table-salt can be used instead. Spread along the ground a train of table-salt. The ants will not only not cross over this little rampart, but they will even quit their nests, if salt be thrown near the same, and will emigrate far from the salty ramparts. We have not tried this latter means, but persons worthy of credence affirm to us that they have had complete success with salt.—*La Nature.*

Percentage of Dry Quinine in its Salts.—The following table will be found valuable in calculating formulæ.

Salt.	Percentage.
Acetate	75.5
Hydrate (the alkaloid precipitated and dried)	85.7
Basic Chlorhydrate	81.6
Lactate	78.2
Basic Bromhydrate	73.5
Valerianate	72.9
Basic Sulphate (ordinary sulphate)	74.3
Sulphovinate	72.0
Neutral Bromhydrate	60.0
Neutral Sulphate	59.1
Tannate	20.6

BIBLIOGRAPHY.

AMERICAN MEDICINAL PLANTS: An Illustrative and Descriptive Guide, etc. By MILLSPAUGH. New York and Philadelphia: Boericke and Tafel, 1886.

THE third fascicle of this work, just at hand, contains parts 11 to 15 and consists of thirty plates with the text relating to the following simples:

Æsculus Hippocastanum (Horse chestnut), *Agrostemma Githago* (Corn cockle), *Aralia racemosa* (Spikenard), *Asclepias tuberosa* (Pleurisy-root), *Asimina triloba* (Pawpaw), *Baptisia tinctoria* (Wild indigo), *Benzoin* (Spice-bush), *Cichorium Intybus* (Chicory), *Cimicifuga racemosa* (Black cohosh), *Conium maculatum* (Poison hemlock), *Cornus florida* (Flowering dogwood), *Drosera rotundifolia* (Sundew), *Eupatorium purpureum* (Purple boneset), *Eupatorium perfoliatum* (Boneset), *Fragaria vesca* (Wild strawberry), *Kalmia latifolia* (Mountain laurel), *Lobelia inflata* (Indian tobacco), *Lappa* (Burdock), *Monotropa uniflora* (Indian pipe), *Populus tremuloides* (American aspen), *Phytolacca decandra* (Poke-weed), *Plantago major* (Plantain), *Rhus aromatica*, *Rhus glabra* (Smooth sumach), *Rhus Toxicodendron* (Poison ivy), *Stramonium* (Thorn apple), *Sarracenia purpurea* (Pitcher-plant), *Triosteum* (Feverwort), *Verbascum Thapsus* (Mullein), *Xanthoxylum* (Prickly ash).

This covers the first half of the work which, when finished, will contain about 180 descriptions. The work of the author and publisher is very creditable; the illustrations in color being very handsome and the text full of interesting material. We have no recent work on indigenous drugs that approaches to this in completeness or beauty, and it deserves a very liberal encouragement.

THE CHEMISTS' AND DRUGGISTS' DIARY, 1886. Eighteenth Year.

THIS annual volume presents its usual robust appearance, so far as relates to its complement of advertising matter. The text, in addition to matters of legal nature especially calculated to benefit British pharmacists, consists largely of a comment upon the pharmacy of the new British Pharmacopœia.

SIXTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH, LUNACY, AND CHARITY OF MASSACHUSETTS. Supplement containing the Report and Papers on Public Health. Boston: 1885, pp. 403, 8vo.

THE portions of this report of especial interest to pharmacists are the Second Annual Report relative to the Adulteration of Food and Drugs; The Relation of Illuminating Gas to the Public Health; A Study of the Relative Poisonous Effects of Coal and Water Gas, and the article on Disinfection. All of these papers will be found to add important facts to the literature of the respective subjects.

DRUGS AND MEDICINES OF NORTH AMERICA. Cincinnati: J. U. & C. G. Lloyd, 1875.

THE December number of this elegant quarterly, embracing pp. 241 to 272, completes the description of *Actæa*, and commences that of *Cimicifuga racemosa*. The plates and the illustrations in the text are numerous and elegant, and the text is exhaustive of the subject.

DRUG merchants report that the peppermint oil market has not been so lively in many years as during the past month. Prices have advanced about 50 per cent in view of the demand. Following so close to an unprecedented apple crop and an increased make of cider, the large demand for peppermint is suggestive.